THE

PHYSIOLOGY

OF

THE SENSES;

OR,

HOW AND WHAT WE SEE, HEAR, TASTE, FEEL AND SMELL.

BY

A. B. JOHNSON,

AUTHOR OF "RELIGION IN ITS RELATION TO THE PRESENT LIFE," "THE MEANING OF WORDS ANALYSED INTO UNVERBAL THINGS," "A TREATISE ON BANKING," ETC., ETC.

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INTRODUCTION.

"We should be surprised, and probably reject with contempt, the labours of an astronomer who should place full reliance on his observation of the stars, without having first verified the accuracy of his instruments." When, some seventeen years ago, I read this remark of a very profound English writer, I was composing the present volume, and I thought an analogy existed between the supposed astronomer and men generally who rely on the senses without any previous verification of their reliability. Without, however, regarding this analogy, I had long previously assumed, that to understand definitely, our sensible powers would improve our knowledge of the external universe, it being derived wholly from our senses. To obtain the desired understanding, I commenced with the simplest truisms I could conceive, as, for instance, that hearing informs me of sounds, seeing informs me of sights, &c.; and as a sight, sound, taste, &c., are as discriminable from each other as a triangle and a circle, I sought to ascertain how many different theorems the truisms

would constitute by a method which I invented after the manner of geometrical demonstration. I shall not burden the present publication with the formula, though I think it useful as an intellectual exercise; nor shall I adduce many of the elicited theorems. I employed them as a net to catch, without reference to quality, whatever the meshes were capable of holding, and subsequently I endeavoured to classify the facts I had taken, and to apply them to some practical utility. Whether I have succeeded, the reader must determine from the present publication, condensed from voluminous materials, and made as little repetitious as the theorems running into each other would permit, though I have not scrupled to repeat any illustration that would explain best a new tenet. I confess to the seeming absurdity of telling men how they see, hear, feel, &c., acts that commence with our birth and terminate only with our life; still a difference exists between practical knowledge and speculative, hence a good builder may be a sorry lecturer on architecture; the respective knowledge belonging to entirely different organisms—speculative knowledge being intellectual, and practical being physical. But my early efforts were most embarrassed by conflicting truisms; as, for instance, a theorem asserts that "what one sense informs me of, no one or more of my other senses can inform me of," while certainly a written orthoëpy, which I can only see, teaches me how the word orange sounds when heard. My

endeavours to reconcile such contradictions disclosed to me the doctrines which in 1854, I published as "The meaning of Words analysed into Unverbal Things, and Unverbal Things classified into Intellections, Sensations, and Emotions." A book which the present publication ought to have preceded, as yielding principles almost essential to an understanding of the former.

The foregoing results evolved themselves spontaneously with numerous others; as, for instance, the capacity of verbal precept and sensible example to teach a person dancing, walking, talking, painting, sculpturing, amputating a limb, and generally any muscular performance;—the ignorance inseparable from a deficiency of any of the senses, and the mode of instructing persons so afflicted; together with the effect of such affliction on the emotions of the sufferer,—a topic heretofore untouched by inquiry;—the affiliated knowledge of the senses and the intellect, by which affiliation a surgeon who looks at a wound ascertains its prognosis, and Fulton, when he saw an ostensible perpetual motion, ascertained that it proceeded from a concealed crank. Finally, the theorems manifest the knowledge I can derive from reading, seeing of pictures, &c.;—the degree in which any given sensible knowledge is common to different men;—our progress in the acquisition of sensible information;—rules for the facilitation thereof;—the limits and latitude of sensible knowledge;—its discrimination from intellectual inferences and

the demarcation of both intellectual and sensible knowledge from our emotional manifestations. Indeed, the topics of the book can hardly be condensed into a less compass than the book itself, for as I despaired of making it pleasant reading, I made it as brief as possible; except that, aware of the incapacity of language to communicate abstractly, I have attempted to communicate by only familiar examples, which are necessarily more diffuse than abstract propositions. To still further explain the book, I refer to the following Table of Contents, in which, however, I have asserted only random captions taken often from memory.

EXPLANATION OF TERMS.

Every information received from the sense of seeing, I call a sight.

Every information received from the sense of feeling, I call a feel.

Every information received from the sense of hearing, I call a sound.

Every information received from the sense of tasting, I call a taste.

Every information received from the sense of smelling, I call a smell.

The phraseology is adopted to denote unmistakeably the external sense from which any given sensible information is derived.

CONTENTS.

PART I.

OF THE ACQUISITION OF SENSIBLE KNOWLEDGE.

THEOREM I.

The principles that render personal disguises effectual.
The Chinese puzzle and the changes of a kaleidescope.
An organic difficulty which obstructs invention.
The organic effect of personal adornments.
The power of description.
An organic difficulty in the art of design.
The organic effect of new additions in known appearances.

THEOREM II.

Objects known in conjunction are not necessarily known separately.
Another principle which renders disguises effectual.
The organic principle by which robbers prevent identification.
A knowledge of the whole of any object, is compatible with an ignorance of all its parts separately.

THEOREM III.

Sensible knowledge is organically progressive.
The individuations of infancy are gross.
The progress of individuation cannot be much assisted by art.
Children are obstructed in the acquisition of the alphabet by the difficulty of individuating.
Only a given number of individuations can be recognized in a given time.

Sensible individuations seem unlimited.

Language augments with the discovery of new individuations.

We see resemblances with a facility inverse to our power of individuation.

We see ordinarily but few of the individuations that the face of an acquaintance can exhibit.

Why a portrait will become a better likeness by familiarity with it.

Infants individuate too little to see likenesses readily.

The accustomed occupations of a man influence his individuations.

Men differ in their proneness to individuate. The habit is improvable.

Social employments are influenced by the degree in which we organically individuate.

The tendency of vision is towards new individuations.

We become measurably insensible to individuations after a given familiarity with them.

The stare of ignorance is an organic effort to see novelties in totality.

Language is founded on our organic disregard of individuations.

Much of education consists in the acquisition of individuations.

A difficulty which obstructs physical discoveries.

Mineralogy, geology, botany, and several other modern sciences, are recent indications of sights which were always before men's eyes.

THEOREM IV.

We sometimes account as disease what is only inordinate individuation.

The organic effect of occupation on pain.

Pain is somewhat under the control of the intellect.

THEOREM V.

Every strange language seems monotonous.

An organic difficulty in the acquisition by children of their vernacular tongue.

Why alarming sounds are often heard at night.

THEOREM VI.

The organic principle by which nauseous tastes may be disguised. Some rules of politeness founded thereon.

The names of totalities are learned by children earlier and more easily than names of individuals.

The taste that is organically tasteless, and the smell that is odourless.

THEOREM VII.

The variety of odours discoverable by any man is proportioned to the degree in which he has cultivated the individuating power of smelling.

An enthusiast in floral fragrances enjoys odours unperceived by common observers.

Many sensible enjoyments are the result of like cultivation.

The organic effect of camphor and tobacco in preventing infection.

THEOREM VIII.

An infant sees nothing in flame to deter him from thrusting his hand therein.

To communicate sight to the blind will not enable them to walk immediately without groaping.

Children learn early a species of physiognomy.

The ignorance that is inseparable from inexperience.

Literature is but a small portion of man's education.

Sensible indications are a more important knowledge, but acquired so organically as to be seldom deemed acquired information.

Men's occupations influence the kind and quantity of such acquisitions.

All animals learn sensible indications.

What sight indicates to the instructed intellect we mistake for original perceptions.

A knowledge of tangible enumeration is compatible with an ignorance of visual enumeration.

Each sense reveals to us a world peculiar to itself.

Man estimates everything by a standard subjective to himself.

THEOREM IX.

The descriptive powers of language.

How far a man can learn sights that he never saw.

The communicability of words.

The occasional embarrassment of dentists by our inability to locate visibly what we feel.

The more we enlarge our sensible knowledge by travel or otherwise, the more we enlarge our capacity for proximately understanding verbal descriptions.

The benefit of travel to young children.

The unintelligibility of prophecy.

Any given sentence may communicate different information to different men.

We can scarcely frame a sentence that will not be intelligible of something to every person; hence a man who conceitedly thinks he knows everything, can seldom be taught by words.

Deviations from our experience we are prone to deem anomalies of nature. The practice is as habitual to a clown as to a philosopher, and to a child as a man, it being organic in all.

THEOREM X.

The power of a written orthoëpy.

The power of written music to communicate new tunes.

The sound of approaching horses is unintelligible to young children.

The means by which ventriloquism and mimicry deceive us.

Early infancy is not subject to the deception.

The winds whistle to a sailor information unintelligible to landsmen.

The click of a watch indicates its condition.

A stethescope is not intelligible to an unprofessional hearer.

Every perception of each of our senses is significant beyond itself.

A knowledge of the significations is different in different persons and improvable in all.

Unusual sounds alarm us in proportion usually to our ignorance of the foregoing principles.

The testimony of a man as to the perception of a sound relates to his hearing, but his testimony as to its cause, location, and other concomitants, relates to his intellect.

The distinctions are acted on in courts of law.

THEOREM XI.

The indication of smells is less employed than the indications of hearing and seeing; but Laura Bridgman, who is blind and deaf, employs them largely.

Our organism controls our practices.

THEOREM XII.

Phraseology is prone to spontaneously designate the organism through which any given knowledge is derived.

The same word names often the intelligence of two or more organs, and when we estimate the oneness of the intelligence by the common name, we create a fallacious mystery.

THEOREM XIII.

To tell a child three times one are three, will not necessarily teach him that three ones are three, or that two and one are three.

This organic difficulty obstructs all learning that is taught by tables and rules—as grammar, arithmetic, &c.

Obstructs also the efficacy of precautionary precepts.

From the same organic principle originate all enigmas and riddles.

Words can be signs of such ideas only as a man happens to possess.

Sounds possess emotional effects irrespective of their import as sounds.

A child will evince symptoms thereof on the day of his birth.

Children can be pleased with stories and soothed by songs wholly irrespective of the intellectual import of the words.

The privation of deaf mutes in the above particulars is rarely estimated.

THEOREM XIV.

Seeing indicates that a stone wall is tangible on only the same principle that it indicates iron of a given red colour is hot.

An orange is an intellectually conceived unit, but sensibly an association of many sensible units.

When we confound the intellectual integer and the sensible elements, we create a speculative mystery.

Names apply usually to the intellectual integer of which the sensible elements are deemed qualities.

THEOREM XV.

The smell of fire is insignificant to an infant.

A thermometer, which measures heat, (a feel) speaks to the sense of seeing.

We probably shall never obtain a good photometer till we chance to discover, in connection with light, something perceptible by some sense other than seeing.

The rapidity of the blood is measured by the feel of the pulse;—many instances evince a like principle.

PART II.

OF THE EXTENT OF SENSIBLE KNOWLEDGE.

THEOREM I.

How unknown sights can be spoken of most understandingly to the hearer.

How far pictures can disclose them.

The scriptural designation of "as white as wool" was probably the best explication of whiteness that the locality afforded.

The intellect sees an analogy between its own operations and sights, whereby the blind may speak of bright, clear, brilliant, clouded, &c., with a better appreciation thereof than is usually supposed.

THEOREM II.

Intellectual knowledge of pains discriminated from physical knowledge.

Our physical knowledge of another's pains is small.

When we see surgical operations, we estimate them by the emotions they excite in us; but the patient estimates them by his sensible feelings.

That words cannot express all we feel is not a defect of language, but a condition of our organism.

The phrase "intensely cold" is used as appropriately within the tropics as in the polar regions, an identity of words being consistent with great diversity of their unverbal meaning.

THEOREM III.

Our muscular performances daguerreotype our muscular powers.

All arts are correlative to our organism.

Instruction is communicated experience.

Assisted by an organic sympathy in the learner.

Why a learner can paint from a copy when he cannot from the depicted object.

To produce spontaneously any muscular effect is essentially different from the production thereof premeditatedly.

Physical instruction, in all its varieties, analysed.

The difficulty in any new muscular performance is relative to the newness of its elementary parts more than to its difficulty *per se*.

THEOREM IV.

Man's intellect is as correlative to his physical organism as the eye is to light. Every animal seems to possess an analogous unphysical correlative adapted to its physical organism.

To look at a juggler will not enable us to detect his tricks, when they are produced by means unanalogous to those we know.

Table turnings and spiritual rappings are subject to like remarks. We are in a fit condition to be deceived by such tricks when we believe that nothing but a vigilant look is necessary to their elucidation; hence persons who resort to spiritual exhibitions are generally the people who can be converted thereby.

An animal who could will no effects would probably possess no notion of causation.

The notion of causation is subjective to the organism of our intellect. It is an intellectual necessity which nothing sensible can satisfy. Our theories are the results of such necessity and subjective thereto. When we deem them external realities we are deluded.

The theories of the blind and deaf are modified by the limitation of their sensible knowledge, and every man's theories are equally correlative to his sensible knowledge.

THEOREM V.

The congruity between cause and effect is an intellectual conception.

A child will see no congruity between any cause and its effect.

We are all in that condition in particulars which exceed our experience and its analogies.

The congruity between a large bell and a loud sound is not known *à priori* of our experience with bells or analogous things.

The like organic limitation variously illustrated. Hence our inability to originate, and the long intervals that elapse between discoveries that subsequently seem plainly indicated.

The congruity between our conduct and its consequences is subject to a like organic undiscoverability *à priori* of experience and its analogies; and hence the frequent failure of inexperienced persons.

The principle affects every profession and every employment.

The compatibility and incompatibility of any given means to effect any given end are subject to an organic limitation like the foregoing.

A child knows not originally that he cannot catch a rainbow, and the principle is as applicable to a man as to a child.

Pharaoh's sorcerers could account for only such Aaronic miracles

as they could analogically imitate; all others they attributed to the "finger of God," and our theories possess the same organic limitation.

The ultimate conclusion of our intellect in the power of Deity is as subjective to the intellect as the rest, and hence it is a part of our speculative knowledge as authoritative as any other.

THEOREM VI.

How experience, which is specific, acts beyond itself.

The principle is to be found in our emotional organism.

Our knowledge is homogeneous only intellectually.

It is emotional, sensible, and intellectual, and therefore heterogeneous.

The emotions may be deranged while the intellect is sane.

The senses and emotions may both be deranged and the intellect be sane.

Intellectual insanity should alone create an immunity against legal accountability.

Intoxication affects the emotions more than the intellect.

Our personality is only intellectually a unit.

It is sensible, emotional, and intellectual.

Phraseology daguerreotypes our tripersonality.

Phraseology relates to our organisms.

Etymology can account for only the origin of words, not for their ultimate intellectual or emotional meaning.

The meaning of words can be often found best in the organic manifestations to which the words are applied.

Phraseology assimilated to Fossilogy.

A comparative Philology recommended to ascertain the expedients which the intellect adopts in the formation of different languages, that we may thereby gain a knowledge of the intellect, which is a nobler work than language.

Part First.

OF THE ACQUISITION OF SENSIBLE KNOWLEDGE.

THE

PHYSIOLOGY OF THE SENSES;

OR,

HOW AND WHAT WE SEE, HEAR, TASTE, FEEL AND SMELL.

THEOREM I.

If anything (A) be one sight, and anything (B) another, and A and B together another sight (A B,) seeing does not inform me of the sight A B, when it informs me of the sight A and the sight B.

COMMENTS.

I lately saw a daguerreotype miniature, when a friend remarked, that were it viewed in connection with a coloured miniature,* it would yield to a

* Coloured daguerreotypes had not then been invented.

stranger an exact knowledge of the person represented. The theorem contradicts such a result. The daguerreotype is one sight (A) and the coloured miniature another (B); but the colour and the daguerreotype combined, would constitute another sight (A B,) which would be unknown. A milliner may think that a blue ribbon and a pink will look well on a cap, but, aware practically of the limitation of sensible perception, she will apply the combination to the cap experimentally, before she will cut and attach the ribbons. I may know a man with black hair, but how he will look, should a light-coloured wig be placed on his head, no inspection of him and the wig separately can enable me to know. No familiarity with a female unscarred with the small pox, and with such scars on other people, will teach me how the female would look were the scars on her face. This principle effectuates personal disguises even after we have been admonished of the assumed disguise, the change affecting us organically. The Chinese puzzle derives its interest from the organic limitation we are discussing. The pieces are before us, only seven in number, but changes of their juxtaposition will produce several hundred different images, whose appearances are severally as

unknown to us before their formation, as though we had never seen the parts of which they are composed. The successive sights of the kaleidescope are none the less new by our acquaintance with the parts in another combination, or with the parts separately. An extensive calico printer, whose time is nearly engrossed in efforts to invent new patterns, stated casually to me lately, as a curious result of his experience, that he had sometimes been sadly disappointed at the result, when, relying on his prescience, he had directed a trivial change of position to be made in the figures of some long used pattern.

If you wish to select a new carpet, the shopman will place the strips in juxtaposition, knowing practically that the figures in separation, will not teach you their appearance in union. The variety of the human countenance results from no great diversity of separate features and hues, but from trivial differences of their combination; hence a black patch, not bigger than a pin's head, has at times been customarily employed by females as an ornament of the face; not certainly for itself but for its effect on the general appearance. Earrings, combs, jewelry, feathers, and dress generally, act favourably on the same principle; and conversely,

strabismus, a flattened nose, and the loss of a front tooth, or its decay or deformity. Every image that you can describe with chalk on a black board, is only a new combination of white and black. Locke supposes that a person acquainted with the shape and separate colours which, when united, compose a rainbow, might, without seeing the combination, know the appearance of a rainbow; but the supposition is of impossible fulfillment.

Travellers and novelists often rely on the principle assumed by Locke, but for communicating to us a new sight, even of known components, as rocks, hills, lawns, &c., every verbal description is powerless, though operative it may be on the intellect and emotions. A jeweller, before whom is lying three diamonds set in a gold ring, cannot, with all his experience, foretell the appearance the ring will assume by a different setting of the diamonds; and if employed to change their position, he will experiment before he fixes the diamonds in a new combination.

The visual limitation to which the theorem refers, embarrasses painters. Every touch of an artist's pencil changes the whole figure; and the effect of the change for good or ill, no skill can anticipate, except from experience in similar or an-

alogous cases. I have seen paintings which show that a slight curvature of the mouth will exhibit laughter, while an equally slight curvature another way, will exhibit the countenance distorted with weeping. We are often unable to recognise our most intimate friends when they are dead, still the transformation consists usually of only the hue of death substituted for the bloom of life.

The art of dress, so far as relates to the colour that is becoming to any given complexion, depends on the principles of this theorem; also the effects of light and shade, which some ladies are said to regard in the position they select to occupy in their drawing rooms; and the different appearance of persons and things by candle light and by sun light. If we had never seen the moon except by day light, we should little suspect the appearance it assumes at night. The like may be said of the heavens generally,—of lightning, and of a conflagration.

In the same way,

If anything (A) be one sound, and anything (B) another, and A and B together another sound, (A B); hearing does not inform me of the sound A B, when it informs me of the sound A and the sound B.

The like may be said severally, of feeling, tasting, and smelling, with respect to feels, tastes and smells; and doubtless many interesting physical facts can be evolved therefrom, and from all the theorems that I shall pass without comments.

THEOREM II.

If any two things (A and B) cause one sight, A B, and any one of the things (A) can cause another sight A; seeing does not inform me of the sight A, when it informs me of the sight A B.

COMMENTS.

The preceding theorem related to compounding one sight out of two; the present relates to separating one sight from two. I once saw a child playing with a small ball of china. His mother wondered where he had obtained it, but the next morning she found the lid broken of a china teapot, and the ball had constituted a part of the lid. The ball was familiar to her in its connection with the lid, but never having seen it separately, she did not recognize it in the hands of the child. The ball, while on the lid, could have constituted a sight by itself, and hence have been recognized as a familiar object when seen separately; but thus

to individuate a part of any whole object (the A of any A B) is not necessarily the effect of seeing the whole object. We identify a mutilated dead body, by only some unchanged sight which we had formerly individuated,—some mole, tooth, or scar; hence such recognitions are usually confined to observant persons, or to those who knew the deceased intimately. Persons who have seen the Siamese twins, may never have viewed them separately, and consequently would not recognize either if seen alone; though objects so large would probably be viewed separately as well as conjointly, and hence be recognized subsequently in separation. When a child sees a full moon, and at some future day sees it diminished to a half moon, we might laugh at the child's simplicity should he say he never before saw what he was then looking at; but his ignorance would proceed from the organic limitation of our perceptions. The moon teaches no man the appearance of its parts unless he view the parts separately; as a person who sees a diamond ring may, by making each of its stones the object of a distinct sight, know them separately when disconnected from the ring. Such a mode of seeing is no inevitable consequence of wearing a diamond ring for years; hence robbers break up the setting

of diamonds to prevent a recognition of the stones; but a lapidary, being accustomed to individuate stones, will as readily recognize known diamonds in separation, as the group in its original setting.

I have seen a person cut out of a piece of blank paper the profile resemblance of an acquaintance. The profile was a part of the paper, but I saw it not. The artist may have seen the profile in the paper before he commenced cutting, for habit may have enabled him to make such individuations. An annular eclipse is but a part of the general appearance of the sun; yet to look at the sun when uneclipsed, will not enable me to know the appearance of the eclipse. I occasionally look at persons in the street who are approaching me, and contrive to see the feet first, and the upward form successively; and not unfrequently his whole body must be seen before I recognize even an intimate friend; though certainly, all I am unable to recognize must repeatedly have been seen by me in connection with the general appearance. The concealment of even a small portion of a man's face, will usually prevent his being recognized, the exposed part never having been made a separate sight; hence personal disguises can be be produced as effectually by the disassociation of

known appearances as by the addition of new ones.

The organic principle involved in the theorem occasions some curious practical consequences. Light is an ingredient of every sight, but while it is known as simply an ingredient, it will be A of some sight A B; hence before we can recognize light, we must recognize it separately. The like may be said of colour. The colour of grass is A, and the grass is B, which together produce the sight A B; and if you undertake to teach a child the colour, as something separate from the grass, you will find much difficulty. You may tell him the colour is on the grass. He will reply he sees nothing on the grass—he sees the grass only—(the A B;) and only after much familiarity with differently coloured objects, will he see the colour in separation. The blind know nothing of darkness, in which they are perpetually shrouded, (it being always the A of some A B,) and we should know nothing of light were we as perpetually enveloped therein. The principle pertains to all the senses. The deaf know nothing of silence and we should know nothing of sound were it perpetual and without modulation, the A always of some A B. We are unable, from a like reason, to individuate

vitality as a distinct feel, and the circulation of our blood. So in whatever temperature a man might live, tropical or polar, he would be unable to individuate temperature, were it never intermitted or varied. We are always surrounded with air, as a fish with water; hence we feel air as wind when it is in motion; or as temperature when it is cold or warm; but not air simply. No doubt fish feel not the water, except as we feel air. When we enter water, we individuate it as something independent of both motion and temperature; and when a fish springs out of water, it doubtless individuates air as we individuate water. Were no beings subject to death, we should individuate animate existences as distinct from inanimate, but not life as an opposite of death. The effect on language of the foregoing principles, is evident by our possessing no name for any *sensible* universal quality; all recognized qualities possessing an opposite, as hot, cold; heavy, light; swift, slow; wet, dry; or a privative, as noise, silence; sapid, insipid; visible, invisible; coloured, uncoloured, &c. &c.

In the same way,

If any two things (A and B) cause one sound A B, and any one of the things can cause another

sound A; hearing does not inform me of the sound A, when it informs me of the sound A B.

The like may be said severally of tasting, smelling, and feeling, with respect to tastes, smells and feels.

THEOREM III.

WHATEVER number of things seeing informs me of at the same time, they constitute but one sight.

COMMENTS.

When I look at a tree, the view may be so general as to include the whole tree, or so particular as to include one of the leaves only, or some filament of a leaf; but the gaze, whether general or particular, constitutes what the theorem designates as one sight. The first sight of a new object includes usually the whole object to the extent that our vision can include it. The absorbing stare of a rustic, when brought into the busy streets of a city, is only an organic expedient of the eyes to embrace as much as possible of the novelties. It is accomplished spontaneously, hence when we travel amid new scenery, our views are continually including a landscape, rather than individualities, and a flock of sheep rather than an

individual thereof. Should a person's attention be subsequently attracted to any one of the flock, he would view the one in gross. You may direct his attention to its colour, its horns, and thus cause him to individuate particulars; but he would still see but a few of the sights a sheep is capable of yielding. The shepherd can select it from a thousand, and knows its peculiar blemishes and beauties, including the qualities of its fleece. He knows more than you, because familiarity has caused him to see singly what you see in gross. When we take a friend to view our grounds, we often attempt to reverse the order in which sights are organically evolved. We know that before he will note nice individuations, his sojourn will have terminated; we therefore continually press upon his attention particular views, as more deserving of his regard than the general views that he would naturally look at. When we visit some new panorama, our sight glances from surface to surface, till we have obtained superficial views of the whole. We become then attracted to particulars more or less minute, according to the time we devote to the exhibition, our habits of observation, or our peculiar studies. The officious designations that visitors give each other, as new sights occur to

them, manifest the organic process to which we are adverting. But such designations are not necessary. Nature has taken care that the process which makes the new sights break forth to one visitor, shall make them break forth to all. Every spectator may not see the same sight, but usually, he is equally well occupied.

The views of infancy are more general than those of adolescence; and these more general than the views of manhood. An infant has acquired some familiarity with surrounding objects before he individuates his nurse, whom he will view originally, as a part of some general sight. Infants seem to individuate early the flame of a candle; but not the sights which a man individuates therein—as the lambency and colours of the flame; the smoke with which it terminates; the height and pyramidal form of the flame; the distance of its base from the melted substance; the ignited wick and the unignited, &c. Men often see in the human face a resemblance to a fox or other quadruped; and some mountains, as Anthony's Nose, on the Mohawk river, exhibit the profile of a man. That a mountain and a man should exhibit any sight common to both objects, proceeds from the numerous views (in totality and in detail) which

every object can present, according to either the casualness or scrutiny of our examination; hence a difficulty usually attends the first perception of any such likeness by strangers, and more particularly by children, whose habits of individuation compare with those of men much in the ratio that the experience of men compares with the experience of children. The defective individuation of children we ascribe to levity or immaturity; but it results from the novelty to them of surrounding objects. Nor ought we to be solicitous about their attention to individualities, sights in gross being one of the phases of every man's most important knowledge; and while a child is admiring sights to the extent in each view of his whole field of vision, he is only bringing himself up to our condition, and then he will note particulars as we note them. We may prefer that he shall observe particulars before he acquaints himself with totalities, but he will acquire both, and the natural order of their acquisition is usually the most beneficial.

The theorem explains one of the difficulties of a child in learning the alphabet. His view embraces several letters in gross, and when he is become so familiar with them as to make a separate sight of each, he will probably not indivi-

duate the letter from a portion of the surrounding blank paper. When this is surmounted, much familiarity is required before he can individuate A to know it from all other letters. A teacher becomes practically aware of the scholar's difficulty, and endeavours to excite his attention to the peculiarities of the various letters, but the organic difficulties can be subdued by only a familiarity arising from successive acts of seeing. An adult who is learning the Greek alphabet will encounter many of the foregoing difficulties; though the adult will see, in some of the letters, a resemblance to English characters, and be otherwise assisted by his knowledge of individuation. A blind man, who should suddenly acquire sight, would probably learn the alphabet with more difficulty than an ordinary child.

The above explains a difficulty we all encounter when learning to write. Every letter of a copy is viewed by the learner as a totality, rather than as curves, slopes, hair strokes, down strokes, shape, proportion, size, connection, separation, dots, body, tails, heads, crossmarks, &c., which constitute the elements of written letters. If left to discover these individuations, assisted by only a copy, a learner may never individuate them all; but till

he does individuate them, he may look in vain at his copy for much instruction. Some writing copies are dissected into the above elements; though probably the author of them possessed no speculative knowledge of the organic principle which such copies are intended to assist.

After looking for some time at a picture, it assumes a prominence which arises from our individuating the image apart from the surrounding canvas that our first view included. The more we exclude the surrounding canvas, the greater will seem the prominence of the picture. This individuation of the picture is assisted by the hollow cones which are supplied at exhibitions of pictures, and by the shading with which an artist surrounds his images, and by the deep frames in which pictures are sometimes set.

A connoisseur of painting possesses the same advantage over an unaccustomed observer of them, as a Greek scholar possesses over a man who is looking at the Greek alphabet for the first time. The unaccustomed men of both kinds see in gross, while the scholar sees in the alphabet the peculiarities which distinguish one Greek letter from all others; and the connoisseur sees in pictures the peculiarities which distinguish the passions, actions,

emotions, age, sex, condition and costume that every image is designed to represent. But after a connoisseur shall have possessed a picture for years, he will not have individuated all the sights in it known to the painter; though many persons, after remaining a few hours in a picture gallery, suppose they have seen all that the paintings exhibit. We can be conscious of only one sight at any given moment, hence the reception is impossible of more than a limited number of sights in any given number of minutes. The principle is apparent when you place a book before a man. He can recognize only a few words at a glance, and he can read the contents of the page by only successive individuations. Even to know any word, the page must be held before his eyes a given time. Adults whose literature is small, require, like children, a longer time to look at a word before they can read it, than a man familiar with reading. He sees the word, while the illiterate man and a child must individuate the letters separately, and arrive at the syllables successively, and then at their combination before his memory will yield the audible word. Children can be taught to read any word without such individuation of letters and syllables; and two or more words may, by much practice, be read

together, constituting one sight, just as several syllables come to constitute but one sight; and just as some accountants see several figures in one individuation, and perform addition accordingly. How far such enlarged individuations deserve cultivation in reading and arithmetic, may merit more attention than the subject has received.

As children learn only gradually to individuate particular sights out of what originally are general views, so society learns continually new individuations. In England every acclivity has acquired a name, and every declivity, pond, ravine, and enclosure; while in America extensive regions possess only one name, as prairie, forest, mountainous, level, wet, dry, &c. The language of every people is therefore constantly augmenting in bulk by new individuations. In the early vocabulary of every country, we shall probably find a name for fish, while the individuations of different kinds of fish are named by words that denote a later origin. So the separation of existences into vegetable, and animal; animate and inanimate; preceded their division into orders, classes, species, families, individuals, &c., and illiterate people continue to apply the word star to meteors as well as the objects that astronomers individuate as comets, satellites,

planets, &c. A child will apply the term meat, with no discrimination between beef, mutton, veal, lamb, and pork. He will employ the word fish still more irrespectively of any difference of kinds; and the word bird, or poultry, with equal indiscrimination of sensible differences.

We impute to keenness of discrimination, the ability which some men possess over others in recognizing resemblances between different persons, and between persons and their portraits; but the recognition proceeds more usually from the absence of acute discrimination. I see so indiscriminately, that I continually meet horses that look like mine; and I have so frequently been contradicted when I have ventured to assert such a resemblance, that I now seldom venture on the expression. I rarely am introduced to a stranger but I can see in him a resemblance to some acquaintance; and no person is more successful than I am in recognizing likenesses in portraits. A more acute observer will contradict my affirmation of a likeness in a portrait, and appeal to differences in the nose, mouth, forehead, &c. He is individuating, while I am looking in gross. On the same principle, a transient acquaintance will sometimes recognize the likeness of a portrait, while a wife or son will

discover no resemblance. The acquaintance has viewed the face as a whole only, while the wife or son is accustomed to individuate the features, and looks at the portrait to discover them. The tendency of sensible perception induces every painter to view the general appearance rather than particular lineaments, and to the extent which the principle operates, the painter will unconsciously portray the general appearance rather than the individuations that are seen by relatives. These suggestions may deserve the consideration of portrait painters, though their first glances at a stranger may, by habit, discover individuations that other persons see only after a long acquaintance.

The nearest kindred will not necessarily discover all the sights which their kinsman's face is capable of presenting, but rather only the sights which indicate benevolence; while an enemy will view in him those which are indicative of malignity; when, therefore, a painter portrays the individuations which he may discover in a face, he may still not happen to note those which are familiar to either friends or enemies. After a painter had taken a portrait of my father, I observed a black spot near the temple, and supposed it was a blemish in the painting; but, on directing my view to

my father, I, for the first time, saw a mole as the picture represented. We have all noted how a portrait in which, at first, we recognize with difficulty the person portrayed, becomes gradually a good representation, for after individuating the likeness, we subsequently look only at that individuation, and hence see continually, and with facility, the likeness. Very young children seldom recognize in a portrait the person represented, and they recognize miniature likenesses with more difficulty than portraits. In looking at persons, infants may include not the face merely as a whole, but parts of the body; for we find that a small change of head dress, or even of dress below the head, will prevent very young children from recognizing their nurse or mother. And again, infants in looking at a portrait, may not individuate sufficiently to see the portrait alone, but may include the groundwork and even the frame. I have found much difficulty in making children see the eyes, nose, and mouth, which most persons see in a full moon, but after these sights have once been individuated, they are seen again whenever the moon presents them. The difficulty lies in only the first individuation, hence evincing that the obstruction is in our organization. The occu-

pations of men influence their individuations. A landscape painter will see picturesque views where an agriculturist will see nothing but the quality of the soil, and a butcher nothing but the condition of the cattle that are grazing in the pasture. A mineralogist will see a variety of minerals where a sailor will see only rock.

But aside from differences of cultivation, men differ spontaneously in their perceptions. One man may ride several times over the same road, and continually miss his way; while another, after having once travelled the road, will always recognize it again. A like difference is perceptible in men's power to recognize persons with whom they have casually associated, but the knowledge which our theorem communicates will enable all to cultivate, understandingly, useful habits of perception. Many people suppose that to see all which is within the verge of their vision, requires nothing but to keep their eyes open, yet a man may own a watch, at whose internal structure he may have gazed often during years, and still know nothing of the structure but its general appearance. I own a pair of brass andirons, before which I had sat for many winters, and never saw that they did not match till a prominent difference was pointed out to me.

I knew a lady of uncommon neatness, who had accustomed herself to individuate at a glance, cobwebs, dust, and spots, that would escape the long search of a less practiced observer in such matters; she accordingly never found a new servant sufficiently neat. The saying is proverbial that no two blades of grass are alike, but the individuation to which the proverb refers is rarely exercised, the ordinary purposes of life being attained without it, and our habits of individuating are formed to subserve only ordinary purposes. The human body had been dissected for ages before the operators saw (though always equally palpable) much that is now individuated therein; and a man unacquainted with anatomy, who should dissect a dead body, might exert on it the utmost keenness of his mature organs, without being able to see but a few of the individuations which he may theoretically know; and doubtless individuations of great utility remain for the discovery of future surgeons.

Mineralogy, botany, and electricity, are all results of recent individuations; and the moment any one of us shall undertake to learn these, or any art or science, we shall find that much of the teaching consists in revealing to us what we

have not previously seen, though repeatedly within the purview of our senses. The single word shell constituted the only designation formerly known for the multitudinous existences that are now individuated with separate names, and compose conchology. The clouds have recently been observed with a reference to their specific differences, and are found susceptible thereby of classification. To a casual observer, the stars are without order or variety; and the person who first employed himself in their individuations, could have little foreseen the science that has arisen therefrom. Every new sight we can anywhere acquire may be useful, and it certainly will constitute an addition to our knowledge of the external universe. By such additions, more than by abstract intellectual speculations (to which ingenious men are too prone) we may hope to benefit ourselves and fellows. Myriads of trees were felled in successive ages, before men noted the convolutions of the wood, and that they increased with the age of the tree. Galvanism is said to have been suggested by the quivering of a dissected frog; though the same quivering had occurred times innumerable without being seen. Fluids expanded by heat and contracted by cold for ages, and men saw them not;

but the moment the expansion and contraction were noted in connection with their concomitants, the thermometer became an easy invention.

We are prone to suppose that to acquire new sights, we must look in new directions; but we shall err less to believe that we can at any time discover new sights if we will look at old objects with increased attention. This course is, however, obstructed by a practical difficulty; we are willing to note the quivering flesh of a frog, after a Galvani has taught us the use of the knowledge, but nature will yield us no such inducement; we must take the trouble of finding the phenomenon before we can know the use, if any, which the knowledge will subserve; and thus to labour for an uncertain reward is irksome, and will forever keep thin the ranks of original investigators; but to know the difficulty may be a step towards its subduction.

If our organization required us to see first in detail and then in gross, a great practical evil would thereby ensue. The totalities that constitute a tree, and that are seen at a glance by every man, would be known to only the speculative few who should possess leisure and inclination for collecting general views. Under such an organiza-

tion of our senses, the objects of research would be the reverse of what they are at present. We now dissect a human body to discover individuations, we should then put together individuations to discover totalities. Nor would this be all the difference. No two blades of grass are alike when viewed with reference to their individualities, hence were we prone to note the individualities of the blades instead of their general resemblances, we should need a separate name for every blade, and language common to different men would be unattainable.

The principle by which we individuate particular sights out of general ones, and thus accumulate sensible knowledge, has been provided for in our organization. Every sight is momentary. The nictation of the eyelids will terminate a sight if it be not terminated previously. The new sight may be only a repetition of the old, but the organic tendency is towards variety. Like remarks apply to all the senses. If we smell a rose, the perception of the odour is by successive inhalations; if we essay any taste, we keep "smacking our lips" by way of repeating the taste that we are desirous of essaying; if we are listening to the roar of Niagara, we keep receiving successive appulses of

the sound. Even in handling an object whose weight or smoothness we wish to estimate, we keep repeating some motion of our hands, by which the feel is successively re-excited.

As a general rule, the longer we employ our senses on any object, the more we perceive in it, and the tendency to note variety is promoted by an organic listlessness which accrues by our familiarity with any object, till persons who live amid the roar of Niagara Falls cease from hearing the noise, except something unusual calls their attention thereto. The workmen in factories lose a perception of the incessant clicking of the machinery, and we become measurably unconscious of the periodical striking of a clock after much familiarity therewith. An habitual tobacco chewer individuates its taste at only remote intervals, and a sailor ceases from perceiving the motion of his vessel.

THEOREM IV.

WHATEVER number of things feeling informs me of at the same time, they constitute but one feel.

COMMENTS.

In a stone you can feel hardness, stone, temperature, weight, size, externality, shape, substance, motion, inertia, impassableness, materiality, surface, continuity, whole, part, rough, smooth. These are not felt by simply grasping the stone, nor can they be felt simultaneously; they must be individuated successively. Rude nations may, for ages, handle stones without individuating all the feels which a stone can produce. Our children, with all the benefit of instruction, learn but slowly to individuate them, and you will not be duly aware of the difficulty therein which children encounter, till you attempt to cause a child to recognize the various feels.

Mechanics, in the objects of their employments, individuate feels that are not known to other men. A tailor will feel in broadcloth something which will indicate to him the durability of the cloth and other particulars that modify its value. A physician will talk of a wiry pulse, a hard pulse and a soft pulse, while you may individuate in the pulse nothing but slow and fast. A valetudinarian will individuate the throbbing of his heart, the inflation of his lungs, and kindred feels which less attentive observers never individuate. He will impute to disease the newly perceived feelings, though they may be the usual action of his organization and only perceived now for the first time, by his inordinate observation. When a physician asks a patient whether he has experienced certain pains, the patient may acknowledge the pains, though previously he may not have felt them; for we are not accustomed to individuate much variety in feels that are unusual, especially when they are either painful or unpleasant. Children are almost totally unable to designate particular feelings, and usually express their sufferings by general terms, as sick, hurt, or pain; and I have often been cautious of needless questions that might defeat the benevolent intentions of Provi-

dence and give a definiteness to childrens' pains. A person who should be told that riding in a coach with his back to the horses will cause nausea, might feel nausea when he otherwise would not. No part exists of our conformation, but an attention thereto will enable us to individuate some feel of which the part seems to be the seat. This sometimes constitutes the disease for which physicians are called on to prescribe. An ingenious surgeon told me that a female had complained to him of an incipient cancer. As he could discover no disease in the spot designated, he placed on it some cotton wool, which he assured her would remove the disease if she kept it applied for a month. He accidentally met her some three years afterwards, when she told him his application had cured her. The cure resulted from the interruption which the cotton produced in the feel the woman had accustomed herself to individuate; and the same result is often produced by increased muscular activity and employment, which are often recommended to hypochondriac patients.

The above accounts for the ill effects of reading medical books. They lead us to individuate feelings that we never before attended to, but which,

being recognized, we deem indicative of disease. The circulation of the blood, the motion of our lungs, chest, diaphragm, and intestines, the extent of surface, external and internal, of our bodies, may well cause us to wonder that we individuate feels from them so little and so seldom as we do. We may see, also, why females whose occupations are few and unabsorbing, individuate such feels more than men; and why the indolent of both sexes are more subject to such individuations than the actively industrious. A feeling in her head, which a female may individuate, when she awakes in the morning, may by continual attention, afflict her the whole day; while the same feeling, if felt by a busy man, will be unattended to after he leaves his bed. I lately visited a family who were amusing themselves with whist. One of the players about thirteen years of age, remarked as a valuable discovery, that card-playing was a cure for the headache. He had suffered by such an ache, and was cured by having his attention directed to the game. By the same principle, the toothache and slight ailments generally intermit during the busy portion of the day, and return in the evening when the sufferer is unoccupied, except by attention to his feelings. The progress of disease

may proceed onward to its consummation in death or its termination in health, whether we regard or not, the feelings with which it is associated; still corporal suffering is of some account estimated by itself alone, hence some value may attach to the knowledge that our feelings may be either unnoted or noted, much in proportion to the effort which we make to individuate them or to avoid the individuation. Opium produces the latter effect artificially; and it can be measurably produced by intellectual efforts.

Were we to much individuate our pains, we should be unable to communicate verbally the individuations; they not being sufficiently known to men in common. All words, therefore, refer to such feelings indefinitely, as headache, stomachache, &c.; or figuratively, as acute, dull, lancinated, &c.; or analogically, as a stitch, twist, gripe, weight, a gnawing pain, a burning sensation, a pricking, pinching, stinging feeling;—as though cold water were running down our back,—as though knives were running through us,—as though all our bones were broken,—as though all our joints were dislocated,—as though our eyes were full of sand; as though a hundred pound weight were attached

to each leg, &c. The expressions meet the practical difficulty by substituting some analogous thing which is manifestible, in place of what cannot be manifested.

THEOREM V.

WHATEVER number of things hearing informs me of at the same time, they constitute but one sound.

COMMENTS.

When a musician listens to the performance of an orchestra, he will individuate every note, and the sound of each instrument; while an unskilled listener will hear sounds in gross, and but comparatively few varieties. In all languages every word is a sound differing from all others; while a person to whom the language is unknown, will hear but the repetition of a few identical sounds. This difficulty obstructs children in the acquisition of their vernacular tongue. Words must become familiar to a child before his hearing will recognize their peculiarities. One of our State prisons contained, some years ago, a man who, as a school master, had been so incensed at the supposed ob-

stinacy of a little female pupil, that he had inflicted blows on her of which she died. Her offence consisted in continually pronouncing hoarse, horse; in one of her spelling lessons. No doubt her unpractised hearing was unable to individuate the difference between the two sounds, though such a view of the case seems not to have occurred to the teacher. A Frenchman once remarked to me that the English language was very hard to acquire, by reason of its containing many words of like sound but which differed essentially in meaning; he adduced as instances, swan, swain, swine; which he duly spelled, as the only mode he possessed of denoting the difference between them. A like difficulty obstructs pupils in the acquisition of either vocal or instrumental music. In the winds, we individuate but little variety of sounds, and in the cries of animals; but were we to listen long and attentively for the purpose of discovering variety, we should probably discover much. If music was suggested to man by the sound of hammers on an anvil, as is fabled or conjectured, the listener must have individuated more variety from such a process than we are accustomed to hear; and a reason for the difference was his unacquaintance with

better music. So the music of rude nations seems to us monotonous, but they listen thereto with an attention that we never bestow, and hence individuate therefrom a variety of intonations that are unperceived by us.

Men differ in the variety of sounds which they hear from birds that frequent our fields and gardens. Persons who attend much to such sounds, will hear variety and melody, where an unaccustomed or inattentive listener will hear only monotony; hence our innocent pleasures may be increased from this and kindred sources, by a knowledge of our organic processes; and conversely we may thereby relieve ourselves from the alarm of noises which are often heard when we happen to lie awake at night, and which proceed from only our individuating common sounds that excite no attention during the occupations of wakefulness and daylight. We are rarely in a position, night or day, when sounds can not be heard, if we will listen.

THEOREM VI.

WHATEVER number of things tasting informs me of at the same time, they constitute but one taste.

COMMENTS.

The facility with which a little sugar or sweetmeats disguises nauseous medicines, so that they will pass undiscovered by children, may teach us how little the children individuate tastes. Men who much individuate them, constitute a class by themselves under the designation of epicures. Such persons will deem intolerable articles of food that persons who individuate less will deem unexceptionable.

So practically aware are we that a keen individuation of tastes is a consequence of luxurious habits, that persons often affect querulousness in eating to manifest that they are accustomed to luxuries. But to designate defects in any food

that other persons are eating, will induce the eaters to discover the defect when otherwise they might not have discovered it; hence such criticisms are deemed impolite by unnecessarily lessening other persons' enjoyments. On the same principle a benevolent host will insure the gratification of his guests by announcing in advance the flavour, age, and other good qualities of his wines; and you may thereby individuate tastes and drink with great satisfaction what you might have drunk with disgust under a different announcement. In the knowledge which a child must acquire we rarely include the individuations of taste; though they must be attained before the child will use understandingly numerous words, as flavour, zest, piquant, pungent, salt, acid, musty, rancid, bitter, acrid. But a more numerous class of tastes, to which no specific names are affixed, must be known before a man will acquire the medium quantity of common knowledge.

Tastes, like the information of our other senses, seem to require a privative before they can be perceived. A person void of the sense of tasting, will know nothing of insipidity; nor could a person how good soever might be his senses, perceive any taste that is unchangeable and unintermitted

pungent though it might be to persons whose organs were not constantly subjected thereto. The habitual state of a man's mouth and his saliva are always deemed by him tasteless; though we may well believe that in many cases, what is thus tasteless to one man, would be nauseous to another. Tobacco chewers are measurably unconscious to the taste of their tobacco.

The same principle is applicable to the sense of smelling. The muskrat possesses an unintermitted odour, which, therefore, is undiscoverable to the animal. It constitutes the state in reference to which it would say (could it speak,) that it smells nothing. But what relates to odours belongs more properly to the succeeding theorem.

THEOREM VII.

WHATEVER number of things smelling informs me of at the same time, they constitute but one smell.

COMMENTS.

If you enter a druggists' shop, and are unaccustomed thereto, you will perceive but one odour, though a druggist can individuate many. One man may pass through a field and discover but one fragrance, while a person accustomed to fields, may individuate the different fragrance of various flowers. An enthusiast in floral fragrances, lives in the midst of odours that are undiscoverable to common observers. To such a man, the emanations of a city may be intolerable; while to a city inhabitant, who habitually endeavours to disregard them, the emanations may be imperceptible. The cultivation of sensible perceptions increases thus our pleasures and augments our discomforts; but

probably in this, as in numerous analogous cases, a preponderance of good more than requites the attendant evils of cultivation.

An inordinate individuation of smells is often induced by hypochondria, hence, probably, has arisen, the notion that camphor, or tobacco, is a preventive of infection; their powerful odour precluding other individuations that would excite alarm.

THEOREM VIII.

ANYTHING which feeling informs me of, no one or more of my other senses can inform me of.

COMMENTS.

1. What seeing indicates to the intellect discriminated from what we see.
2. Experimental indications discriminated from analogical indications.
3. Analogical indications are as latitudinous in every man as his experience.
4. Sensible qualities are sometimes inferred from preceding intellectual inferences.
5. The intellect often identifies sensible diversities.
6. Each sense reveals a world peculiar to the sense.
7. Man estimates everything as subjective to himself.

§ 1. When I approach a stone wall, seeing indicates that the wall will resist my progress. Seeing anticipates thus what feeling would inform me of, should I attempt to force my body through the wall; but a blind man, who should suddenly acquire vision, would grope around a room as cautiously, for some time after the acquisition of sight, as he did previously; for he would see nothing in vacuity to indicate that he can move his body through it, and nothing in a stone wall to indicate that he cannot move through it; nothing in red not iron to indicate it will burn his hands, and nothing in water to indicate that it will wet them. A child will see nothing to deter him from thrusting his hand into the flame of a candle; and when he is beginning to walk, he will see in an open trap door, nothing to deter him from stepping into it. If you stand him on a table, he will walk off the edge with entire unconsciousness that a fall will ensue. If you tell him to touch the moon, he will see nothing to admonish him that the injunction is impracticable. The steam that issues from boiling water, conveys to him no intimation that he must not place his hand within it; and with no suspicion that his action is hurtful, he will attempt to thrust his finger into your

eye or strike you with a stick. That a pressure of our hand against the point of a needle will produce pain, seems unmistakably indicated by its appearance, and when a horse is seen to rush towards us, no experience seems necessary to inform us that wounds and bruises will ensue unless we change our position; but children will press fearlessly against the point of a needle, and will stand in the middle of a street unwarned by the approach of carriages. When a child has learned the alphabet, we think he has just commenced an education; but long previously he commenced a knowledge of sensible indications that is more important than literature. Men become so familiar with such knowledge as to deem it a direct perception; but children look doubtingly at all they see, and thereby learn to read even the human countenance as to its indications of benevolence and other feelings; hence the saying is common that children are good physiognomists.

We learn early in life many of the associations of sights with feels,—what ground will yield us foothold, what will permit us to sink, what rock must be avoided, and what stubble may be walked over. A horse, governed by seemingly the same principles, will avoid a small post that happens to

stand in his way, while he will not always alter his course for a man much larger than the post; conscious that the post can withstand his strength, but that a man cannot. So insects will fly against the ceiling of a room, in manifest unconsciousness of its resisting power; while they will not fly against external walls and trees, whose resistance they have experienced. But though such inferences are thus experimentally acquired, a horse need not run over a man before he can know man's relative impotency, nor need a man wade into a bog before he can know that the place will not sustain him. Experience in analogous cases, enables our intellect to infer physical properties with a sufficient accuracy to control our conduct on all ordinary occasions. When a child attempts to touch a fly, notwithstanding the intervention of a pane of glass, we laugh at the child's simplicity; but a man who should see glass for the first time, would be as ignorant of its impassableness as an infant. Birds, under a like inexperience, fly against glass when they are confined in a room and seeking egress. Dogs generally learn its impassableness, though I once owned a hound who never attained such knowledge. The common house fly seems never to attain it, but fish confined in a glass

globe soon refrain from swimming against its boundaries. I lately saw glass that I did not discriminate from space, but after a little familiarity with its extraordinary clearness, I discriminated it without difficulty. So when persons first see quicksilver, they rarely individuate therein the absence of fixedness and impassableness. Infinite indeed are the indications of sights, and though our acquisitions thereof are governed by our organization, yet to understand the process will assist us in accumulating such as may be new, not to ourselves only, but to all men. A sailor will see the approach of a storm in what to a landsman will seem only serenity and calmness. Appearances can tell a cutler whether a bar of steel can, or not, make sharp cutting instruments; and a surgeon can tell by the looks of a wounded limb, whether or not he will have occasion for such instruments in the cure or extirpation of the limb. A mass of facts pertaining thus to his craft, are indicated to every mechanic by appearances which are either unseen or unintelligible by other men. The like may be said of botanists, druggists, chemists, and mineralogists. The age of a tree is indicated visibly by its granulations; the age of an ox by the corrugations of its horns. A man

can see in ice, whether it will support his weight, while a child can see in it neither strength nor weakness. Strabismus has only recently been understood to denote the contraction of a filament attached to the eye; and the deformity is removed now by severing the filament. Cuvier, by looking at a fossil bone, could discover the size and habits of the extinct animals to whose formation the bone belonged. A useful indication, when thus detected, becomes usually a permanent addition to human knowledge.

A man, to whom, for the first time, a mirror should be presented, would deem supernatural the image therein, which he could see but not feel; the absence of tangibility bringing the sight within the usual notion of disembodied spirits. A large portion of natural magic and sleight of hand is only the severance of sights and feels that we are accustomed to experience in union. Jugglers will present to us the sight which is connected with cutting a hole in a pocket handkerchief, but the hole will not be made. The trick seems to contradict our sight, though it is only a variation of our experience, evincing that the appearance of cutting is not always associated with a tangible cutting. A juggler may see a difference between

the apparent cutting and the actual cutting, while I may not individuate the difference that he is able to see; or I may, from inexperience, not know the tangible associate of the difference, should I see it. Both causes render children peculiarly liable to such delusions, and the causes are not sufficiently known by men, hence they often deem themselves authorized by what they may see, to believe in spiritual table turnings and kindred tricks, assuming that if any tangible propulsion was employed, they could see it—see a feel. People who are ignorant of the independence which exists between sights and feels, are prone to superstitious terrors on the occurrence of any sight without the feel which they usually experience in association with such sight. An ignis fatuus is a sight disconnected from any tangible body; but instead of supposing the disconnection miraculous, I ought to estimate my new experience as a corrective of my previous conceptions of nature.

When a tangibly straight stick is immersed in water to the depth of half its length, it presents the sight crooked; but when the intellect supposes that such a sight reveals the feel crooked, the error is in our intellect, not in the sense of

seeing. Had a person never seen straight sticks, except when half immersed in water, his intellect would deem the sight which the sticks thus present, not incongruous with the feel straight; the intellectual congruity between any sight and feel being entirely the result of our sensible experience. To our intellect no congruity seems greater than the sight round and the feel round; yet a man's sight just recovered from blindness, cannot decide which of two objects is tangibly round and which triangular; how familiar soever his feeling may be with such shapes. When we look at a wet cloth and a dry cloth, the respective appearances seem congruous to the feels wet and dry; yet had the appearance presented by a wet cloth pertained habitually to dry cloths, the congruity between the then sight and feel would have seemed as great as it is in the present associations. The appearance of a stone wall can indicate to a dull man that he cannot pass through it, while the appearance of smoking water cannot tell a wise man whether he can or not thrust his hand into it with impunity. No greater affinity exists between the appearance of a stone wall and impassableness, than between the appearance of smoking water and pain; but impassableness is uniformly

associated with the wall, and pain is only occasionally associated with the touch of smoking water. After a child has experienced that a chair which he is looking at, can be touched by walking two steps towards it, and that the wall of his room cannot be reached without more steps than two; he believes that the information is a direct perception of sight; consequently when he looks at a painting which represents a near chair and a distant wall, and finds that he can reach both with an equal number of steps, he may deem seeing guilty of a deception; but it is obnoxious to no such charge. That the pictorial chair and pictorial wall can be approached with an equal number of steps, and the real chair and wall cannot, are facts of which, if the child be ignorant, the fault belongs to only his inexperience; appearances indicating neither by any direct perception. When I see a man approach, I see the sight motion, and I know from experience, that the sight is associated with a feel motion located in the approaching man. When, however, I am in a ship and see the sight motion as I look at another ship, inexperience will prevent me from knowing whether the feel motion is in my ship or in the other; while a person familiar with such sights,

can decide unhesitatingly. A man may testify in a court of justice that he had been at sea in ship A and had been passed by ship B; but another witness might testify that A was the moving ship and that it passed B. The sight motion was perceived equally by both witnesses, but in which ship was located the feel motion was an intellectual conclusion which could be made more accurately by a witness of experience in such matters, than by a witness of less experience. In an ascending air balloon, the earth seems to recede from the aeronaut, not he from the earth; his intellect being accustomed to locate the feel motion in other bodies when he did not feel it in his own; but after some experience, a practical aeronaut seems to see that the feel motion is in the balloon.

When we look at the sun, we see it move. The ancients located the feel motion in the sun, we locate it in the earth; but the existence of a feel motion anywhere, in connection with the visible motion of the sun is only an organic intellectual inference. That the sight motion implies a feel motion, by any physical oneness of the two motions, is certainly erroneous, for a sight cannot be a feel and vice versa. That the sight motion im-

plies a feel motion by any necessary union of the two, is demonstratively erroneous, one sight motion unassociated with any feel being producible at will in surrounding objects by a rapid gyration of our bodies till we become giddy.

The word motion is usually employed to name neither the sight nor the feel, but a unit which the intellect conceives from the almost uniform association of the sight motion with the feel. Words commonly refer thus to intellectual conceptions, rather than to sensible perceptions; and much speculative confusion ensues when we fail to discriminate whether words are referring to the intellectual signification or to the sensible. B may confine the meaning to the feel, and hence insist that motion is not visible; while A may confine the meaning to the intellectual conception, and hence insist that motion is neither visible nor tangible. Both disputants will be correct according to the several meanings which each attaches to the word motion; and both will be incorrect in supposing that the word possesses but one meaning. The Scriptures referring to the sight motion, say that Joshua made the sun and moon to stand still; while a critic referring to the feel motion, will deny that the sun and moon ever move; but

the criticism involves no invalidation of the Scriptures, for the parties are referring to different meanings. When a blindfolded person encounters a chair or table, experience alone enables him to be certain that any visible object will be seen on the unbandaging of his eyes; though we commonly say that both seeing and feeling can inform us of a chair,—just as though both senses yielded us the same information, which is untrue so far as concerns mere sensible information.

A knowledge of tangible enumeration is compatible with an ignorance of visible enumeration. Our intellect sees a congruity between the sight one and the feel one, but a restored blind man will discover no such congruity. He will only learn gradually by experience, the sight which is associated with the feel one, and the sight which is associated with the feel two, &c., and his intellect will gradually thereafter discover a congruity between the visible enumeration and the tangible —as we discover a congruity between the feel wet and the sight wet. A blind man may apply numbers accurately to feels, sounds, tastes, and smells, but should he acquire sight and be asked to number the sights he is beholding, the request will be not only impracticable of fulfillment, but unintelli-

gible; for as yet, numbers are known to him as only feels, sounds, tastes, and smells.

Feels are indicated not by sights only. The intellect early knows by sounds when doors and windows are being opened, when sails are being lowered, anchors raised, when a person is approaching, when rain is descending, when wind is raging, &c. A witness recently testified that while he was in a room adjoining the scene of an alleged murder, he heard a noise somewhat like the breaking of glass. Subsequent evidence manifested that the noise was the snapping of a percussion pistol. To a practised intellect, the noise would have readily indicated the pistol, as the sound of metals indicates their hardness, solidity, and purity; and the sound of a cask indicates the extent to which it is empty. The physical condition of the lungs can be ascertained by the sound of respiration, and the physical condition of the heart by the sound of its pulsations. This use of hearing is seldom estimated when we contemplate the disadvantages of deafness.

§ 2. The appearance of a tree indicates tangibility, and the appearance of the moon indicates tangibility also; but the indicated tangibility of the tree is experimental, while the indicated tan-

gibility of the moon is a conclusion founded on an analogy conceived by my intellect between the visible tree and the visible moon. We, however, look at the moon and believe we see it to be a tangible body, forgetting that the tangibility of a tree is not perceptible by sight. Again, the appearance of a rope which you may be dragging across the floor indicates to me a tangible motion in the rope, and the appearance of the moon indicates a tangible motion in the moon; but the tangibility of the rope's motion I have learned by only my sensible experience, while the tangibility of the moon's motions is merely an intellectual conclusion founded on the analogy which my intellect perceives between the appearance of the moving rope and the appearance of the moving moon. We, however, look at the moon and believe we see a tangible motion, forgetting that the tangibility of even a rope's motion is not perceptible by sight.

§ 3. Trees exhibit the appearance of moving when we pass them in sailing down a river, hence our intellect concludes that the visible motion of the moon may be caused by a motion of the earth. Trees and houses will exhibit a visual rotation also, after we have whirled our bodies suf-

ficiently to produce giddiness; hence the intellect can infer that the visible motion of the moon may, like giddiness, be disconnected from any feel motion in either the earth or the heavens. In all interpretations, however, the intellect will select those most analogous to sensible experience, hence the intellect decides that the visible motion of the moon indicates a tangible movement of the earth, not giddiness in us; but we may see, by the foregoing, that every conclusion which our intellect can deduce from any sensible appearance, is suggested by only our sensible experience.

§ 4. The intellect obtaining, by means of telescopes, a sensible knowledge of new stars beyond the ordinarily visible heavens, infers organically that if the eye could be placed at the utmost bounds of telescopic vision, stars still more remote would become visible. Nor will the organism of the intellect permit it to stop there, but it infers that a farther remove of the eye to the limits of the last-mentioned boundary, will reveal stars still more remote, and so on, star above star, *ad infinitum;* for the intellect, possessing no sensible data therefor, can infer no termination of space, or of space without stars. In relation to all serial inferences like the foregoing, we shall find, as in this case,

that the further the intellect proceeds in deducing new physical results from intellectual inferences, the further the results will recede from any similitude to sensible experience.

§ 5. Sweet is used figuratively when we say partridges are sweet, water is sweet, music is sweet—the word naming literally a taste. To thus apply a known word to a new analogical use was always easier than to invent a new word, and the meaning is more easily conjectured by the hearer than the meaning of a new word. Such a use of words is, therefore, provided for in the organism of our intellect, yet our speculations are embarrassed thereby; I may say nothing is more curious than the *passage* of light *through* solid crystal. Literally my finger passes through a ring,—water passes through a sieve, my body passes through a chasm. These are all feels, but the passage of light through crystal is a sight; and hence cannot be the same as the passage which I feel, of my body through a chasm, how analogous soever, intellectually, may be the two passages,—therefore the common speculative admiration by philosophers, at the ability of light to force its body through solid crystal, is as fallacious as if I were to admire how music (a sound) can be (sapidly)

sweet. The nature of visibility is to pass through crystal, as the nature of tangibility is not to pass through. We make the curiosity by deeming the passages sensibly identical, while they are only intellectually analogous.

But is the fact not certain, that light passes through solid crystal, for how else can it enter my room? This is only another phase of the same error. The entrance of light no more proves that it must pass through crystal as my finger passes through a ring, than it proves that my finger must pass through the ring as light passes through crystal. A man who should be born with no sense but seeing, would not be surprised that light passes through crystal, nor are we surprised till the passing is deemed by us identical with a tangible passing, instead of only intellectually analogous thereto. We thereby create a wonder by submitting to a speculative delusion. So when you whisper at the end of a long stick of timber, or scratch with a pin at the end of the timber, I shall hear the word or scratch if I place my ear at the opposite end of the timber; the sound is therefore *transmitted* through the solid timber. Now if we would understand unfallaciously this affirmed transmission, we must discriminate what

is sensibly perceived therein from what is intellectually conceived therefrom. To a man void of all senses but hearing, the experiment would excite no wonder; but we who know the resistance which timber makes to the transmission through it of any tangible body are surprised at the transmission of the sound; not, however, at what hearing reveals to us in the case, but at our identification of it with the transmission that feeling reveals to us in tangible operations. We are mistaking an intellectually conceived assimilation, or *modus operandi*, for a sensible identity.

§ 6. Each sense reveals to us a world of its own, if I may so speak. Deprive us of any sense and we are excluded from the world of which the sense is cognizant. Each of five men may possess only one sense, and no two of the men the same sense. They will possess no sensible knowledge in common, though they might use the same words and thus seem to agree in knowledge. Experience often forces on us a knowledge of the unique information of each sense. We see a cannon ball lying on the ground, and know how it will feel with reference to our power of clasping it with our hands; but when we gaze at a ball fixed on the top of a steeple, seeing will not en-

able an inexperienced beholder to determine how the ball will feel with reference to his power of clasping it. To a person who has experimented with balls thus elevated, the appearance can suggest the associated feel as accurately as the appearance of a ball lying on the ground. If a person could exist, void of the sense of feeling, he would see all that seeing yields us, and in conversing with such a person, his sensible deficiency would not necessarily be discoverable. He could talk of rough, smooth, flat, round, near, distant, with entire conformity to our use of the words, for though the words name feels to us, yet each feel is associated with a sight which would serve him as the meaning of the word. We usually deem the word significant of the feel only, and hence say that seeing cannot inform us of distance, &c. We thus produce an enigma by arbitrarily limiting the meaning of the word. When I look at a house, I see distance, and when I walk towards the house, I feel distance; but a blind man who should suddenly acquire sight, would not know by the visible distance that it was an associate of the feel distance or of any feel. We easily comprehend this, but the announcement seems different when we limit the signification of

distance to the information of feeling, and say that seeing cannot inform us of distance. Whether the word distance shall signify the sight as well as the feel concerns language alone, and unverbal things are blameless of the controversy. The separability of what we see and feel is curious and interesting; but how we shall name any sight or feel is at the disposal of man himself.

When I feel a pimple on my hand, I use the word "on" in what may be deemed its literal signification—to name a *feel*. When I subsequently employ the word to name a *sight*, and say a green colour is on grass, I use the word analogically. This simple organic expedient by which the information of different senses is expressed by the same word, produces no difficulty in practical uses, but much difficulty is produced thereby when we speculatively confine the word to its literal meaning, and insist that colour is only seemingly on the grass, not actually. The same difficulty possesses many exemplifications; the words here, there, in, from, to, name usually an associated sight and feel, but if we limit the words to feels, we may greatly puzzle ourselves. Colour is manifestly "nowhere" if the "somewhere" must be a feel. Men who will laugh at my theorems for asserting

that seeing cannot inform us of a feel, &c., will be puzzled by speculations which are only an enigmatical assertion of my apparently ridiculous truisms.

§ 7. The foregoing speculative errors proceed from an organic prepossession whereby man estimates everything by himself. Generation by means of eggs and seed, being only a change of form, is as much less mysterious than animal procreation, as it is less divergent from our mechanical processes. A comet is more curious than a fixed star only because it is less familiar to our vision. The more or less wonder to which we refer in any case, is in us with reference to our experience, not in the comet, star or other thing. If horses had never existed previously, and one should suddenly appear grazing in a field, the horse, considered alone, would be neither a greater curiosity nor a less for its sudden appearance. Indeed the long continued existence of multitudes of horses, and their constant reproduction, all add to the wonder in relation to them when objectively considered; instead of diminishing the wonder. The wonder is diminished by familiarity, only by reason of the subjective standard by which we regulate our wonder. Estimated by the same

standard, whatever injures man, he stigmatizes as noxious animals, poisonous minerals, noisome gases, filthy vermin; and whatever is useless to him, he deems worthless. Animals are strong or weak in proportion as their strength is greater than his, or less. They are large or small with reference to his proportions as a standard: and by the same rule they are deemed long-lived or short, intelligent or stupid, swift or slow, above or beneath, &c. The principle is applied to his own body:—parts that can offend him are termed base, those which are not essential to him, as his hair and nails, are stigmatized as excrescences, and others which are essential are deemed noble and vital. The principle applies also to the relative estimation in which we hold the senses, and I have introduced the subject for only this portion of it. Feeling is more important to us than any of the other senses. It is spread over our body both externally and internally, and is the principal organ of pain and pleasure, comfort and discomfort, health and disease, life and death. All our handicrafts too, and all our most constant occupations relate to the things of feeling. With them we feed and clothe ourselves; on them we lie down and rest; and thus we acquire an organic preposses-

sion in their favour, and deem sights, tastes, sounds, and smells, (the information of our other senses) mere subordinates:—and such they doubtless are, but only with reference to us and our uses of them.

But I desire to show more particularly that our intellectual speculations partake of the foregoing prepossessions without our knowing that our relative estimate of our different senses is significant of only their relative importance to us. The word round signifies an associated sight and feel, and both exist as our senses reveal them; but when our intellect speculates, it decides that the feel alone is the true round; and it decides in the same way in reference to all figures. The word external names an associated sight and feel, (the name applying indiscriminately to both or either,) but we speculatively nullify the sight and say seeing cannot inform us of externality. We decide in the same way of every association in which any feel is a component. An orange names an associated sight, feel, taste, and smell; but our intellect deems the feel the real orange. The principle is still more consequential when our intellect theorizes, it deeming no existence possible without some tangible cause. Moses smote the rock when

water was to be produced, though God had commanded him to merely speak to the rock. Under the same prepossession, we suppose that a distant object can be seen only by reason that an image thereof *touches* (feel) our optic nerves; that the odour of distant flowers can be smelt only by means of corpuscles therefrom *touching* our olfactory nerves, and that thunder can be heard only by means of appulses of air which *strike* our tympanum. None of the phenomena of electricity and magnetism are satisfactory, till our intellect conceives a subtle fluid that performs the necessary pushing and pulling which assimilate the operations to our tangible experiences. Why an unsupported stone should descend to the earth rather than ascend to the clouds, is unaccountable till our intellect conceives an attraction (feel) in the earth to drag it down; while the ascent of a balloon is equally unaccountable, till our intellect assimilates the process to our mode of raising a burden by shouldering it upwards. The rise and fall of tides are unaccountable to a man whose intellect can conceive in relation thereto nothing analogous to his own causal operations; but they are satisfactorily accounted for when the intellect conceives a tangible pulling upwards of the moon to pro-

duce the flow of the tide; and a tangible pulling downwards of the earth to produce the ebb. The word unaccountable, as applied to any natural process, means only that the intellect cannot resolve it into something analogous to our causal operations.

From the foregoing remarks we may discover what separates the processes our intellect can account for from those it cannot account for except by supernatural agencies. The motion of the heavenly bodies it can account for because we can cause analogous appearances. We can account for the saltness of the ocean, because we can cause water to become equally salt; but when our intellect attempts to account for the water itself, our personal operations present nothing analogous to the creation of an ocean. Our intellect will, however, organically insist on accounting therefor, hence we account for it supernaturally; and if we reject the Mosaic account, our intellect will conceive some kindred supernatural genesis, as every people have conceived some theology, witchcraft, or demonology to account for whatever was to them otherwise unaccountable. We talk of the nineteenth century as though we expected from the progress of time an exemption from consequences like the forego-

ing; but time changes the modes only in which our subjective tendencies manifest themselves. At one period I rejected as insignificant all uninspired attempts by the intellect of the above description, but I am satisfied that such conceptions of the intellect proceed from its organism, which, therefore, makes them a part of our nature. So, at one period, I deemed the sun just what I see and feel, regarding as insignificant every conception of the intellect in relation to the sun's being a globe of fire or some other tangible material;—conceptions by which the intellect organically assimilates what we see and cannot touch to what we see and can touch. So the sun's appearance in the east, and its gradual disappearance in the west, I deemed just what I see, regarding as insignificant every conception of the intellect to account therefor by a tangible motion of the earth around its axis, or, as the ancients believed, a tangible motion of the sun around the earth—conceptions by which the intellect organically accounts for the appearances by our processes in producing similar appearances. I am, however, satisfied that the intellect, in all its conceptions, obeys an organic impulse which constitutes an ultimate unverbal signification of the conception, and makes it a portion of our

knowledge. We err not, therefore, when we regard as authoritative our intellectual conceptions, but we err when we fail to discriminate between intellectual conceptions and sensible perceptions; between the tangible revolution of a coach wheel and the intellectually conceived revolution of the earth, deeming both revolutions as identical generically as they are verbally. Having treated fully of this difference in my treatise heretofore published on "THE MEANING OF WORDS," I shall not discuss it further; though to know the difference is essential to any correct estimate of speculative knowledge. It constitutes the key to all speculative mysteries, and with it, we may disenchant all the fairy transformations with which scientific men, of every department of learning, delight to amuse and deceive themselves.

THEOREM IX.

ANYTHING which seeing informs me of, no one or more of my other senses can inform me of.

COMMENTS.

1. The descriptive powers of language.
2. The intelligibility of verbal description.
3. The ineradicable ambiguity of language.
4. Intellectual indications of seeing discriminated from what we see.
5. The intellect derives all its conceptions of sensible properties and agencies from our sensible experience.

§ 1. The theorem enables us to understand the difference which exists unverbally between knowledge that we obtain by seeing, and knowledge that we obtain from reading or conversation. Battles may be described in the most appropriate words,

but the knowledge communicated will be verbal and intellectual, not visual. A blind man can know no sight, and the same inability attaches to us in respect to all sights which we have not seen, and even to new combinations of familiar sights. If we have never seen a fleet of ships under sail, we cannot know the sight, how familiar soever we may be with the appearance under sail of single ships; hence, when our houses are passed by any procession, we rush to the window to enjoy the sight as a novelty, though all items thereof men, horses, flags, drums, and fifes are familiar to us.

§ 2. A verbal description of any unknown sight, is sensibly intelligible to a man by means only of the sights he has seen, and the intelligibility is accurate to the extent only that his known sights approximate to the unknown. The more, therefore, we enlarge our acquaintance with sights, the more we enlarge our capacity for proximately understanding verbal descriptions of sights which we have not seen. A child who has never seen a sailing vessel larger than a canoe, and water larger than a brook, and a fish larger than an eel, would derive but little accurate information from the description of a sea voyage in quest of whales.

Every prophecy is sensibly unintelligible till after its fulfillment, not from the unintelligibility of the words which compose the prophecy, but from our unacquaintance with the sensible events to which the words refer. When an event occurs that fits the prophecy, it becomes sensibly intelligible. We can, however, hardly frame any sentence, but some man has experienced what in a degree will suit it, hence men often construe confidently unfulfilled prophecy; but so diverse is the experience of men and their intellectual conceptions thereon, that the same interpretation rarely suits many men. I own a book published seventy years ago, which speaks of an American who was constructing in England, a steamboat that would make a passage to America in fifteen days. This account possessed much of the sensible unintelligibility of prophecy, and the description is probably more significant to us than it was to the artist who was labouring to invent a steamboat. If the battle of Waterloo had been narrated prophetically to Julius Cæsar, all that differed from his sensible experience would have been sensibly unintelligible to him. I have just read a letter from an American missionary at Constantinople. He expounds a passage of the Talmud which says that boiling improves wine;

and he insists that, like the New England practice of boiling cider, the improvement in the wine is only increased strength;—and thus we all interpret what we hear and read by what we already know. I might publish a book full of the names of colours which never existed. Every person knows it would be sensibly unintelligible, except as readers might apply the words to known colours; but such a book is not more unintelligible to you than any description would be of colours which you had never seen. That other persons have seen them aids you not.

We usually believe that our comprehension of Egyptian hieroglyphics is obstructed by only our ignorance of the language, but were the inscriptions English words, they might be unable to communicate to us the sensible intelligence that the Egyptians intended. The Greek fire is known words, but what the Greeks intended thereby is unknown to us. "Eye hath not seen nor ear heard," is adduced by the Scriptures as a sufficient reason why words cannot communicate the sensible things referred to. That the speaker has seen and heard them will not aid him in communicating them by words to a person whose eyes and ears have not been equally favoured.

§ 3. If you and I have never seen the same white, we may, in the use of the word, seem to refer to the same sight, but our meaning will differ sensibly with any difference that may exist in our experience. True, all whites may be so analogous that no great intellectual misunderstanding can arise by our not referring to the same sight; but that more sensible diversity exists in things named Thomas, than in things named white, is all in which the two words differ in their intelligibility. This ineradicable ambiguity of language is a blessing rather than an evil, for if men could converse together about only such things as they had seen in identity, but little verbal communication would be possible; still the principle leads to occasional misunderstandings that are aggravated when the ambiguity is unknown.

§ 4. If you fill a bladder with air, and submit it to the handling of a child who is unacquainted with the feel of confined air, his intellect will unavoidably conceive that the bladder contains a tangible body. If a child had never seen anything cast into water but what would sink, his intellect would conceive that a stick would sink; nor could he avoid such a conception till his senses should teach him the contrary. Children are usually sur-

prised and amused when they see a feather ascending into the air instead of falling to the earth, their intellect conceiving from their sensible experience, that all bodies must descend. By crossing the third and fourth fingers of a person's right hand, and placing the ends of the crossed fingers on a bullet, the person will feel two bullets when the bullet is gently rolled under the crossed fingers. He should, of course, not look at the bullet, and he will expect confidently that two bullets can be seen. Jugglers can press on the palm of your hand, or on your forehead, some small coin, and then remove it without your knowledge; and your intellect will believe, judging from the feel, that the coin is still on your forehead or in your hand. Such tricks surprise us in proportion to our belief in the identity of the information of seeing and feeling. We occasionally infer from our feelings, that something is crawling over our neck, but on examination, the inference is not corroborated by sight. A person will also feel a pain on his back, and cause the place to be examined with a certainty that some discolouration, or at least, something will be apparent, but nothing may be discoverable. Internal pains which result in death are not always associated with any appearance on

a post mortem examination. Such deviations from our ordinary experience, we are apt to deem deviations from the order of nature; but we ought to deem them exponents of the order of nature, and correct by them our previous knowledge which was founded on an insufficient experience.

§ 5. When a fly is crawling on my hand, I can, previously to looking, know the spot on which I can see the fly, but when my intellect attempts to locate visibly a feel, in a case not within my experience (as, for instance, an internal pain) I find myself unable to point externally to the precise seat of the pain. This difficulty frequently embarrasses physicians, and more demonstrably dentists, who are often called to extract a painful tooth, which the sufferer is unable to identify with certainty. In children the difficulty is enhanced by their general inexperience, so that nothing is less to be depended on than the location which young children assign to pain. Indeed, the question is often unintelligible to a child, when you ask him to show you where he feels pain; for he has not sufficiently experienced such feels in connection with any sight, to make his intellect conceive that the feel indicates any sight; hence your question is about as unintelligible to him as though you

had asked him to tell you how the pain looks. If I touch a rasp and individuate its roughness, and touch a mirror and individuate its smoothness, I seem to need no act of seeing to inform me of the visual difference in these respects of the two objects; and when I subsequently look at them, I seem to see in the rasp why it must produce the feel which I experienced from it, and why the mirror must produce a different feel. The respective feels are, however, only experimental indications of the respective sights; and a child, unexperienced therein, will derive no intimation by touching the rasp and the mirror that the surfaces must differ in appearance; much less will he learn the appearance which accompanies the respective tactile differences.

THEOREM X.

ANYTHING which hearing informs me of, no one or more of my other senses can inform me of.

COMMENTS.

1. Intellectual information derived from sounds discriminated from the sensible information of hearing.
2. Unusual sounds alarm us in proportion to our ignorance of the difference between what is intellectually inferred and what is sensibly heard.
3. The effect of the theorem on legal testimony.

§ 1. Before a written orthoëpy can instruct me, I must have learned the sounds which the orthoëpy represents. Among the remains of Roman literature, were we to find an elaborate orthoëpy it would be useless for communicating to us any

sound that is different from known sounds. When a new written word is only a new combination of known syllables, it will not fall within the theorem. A musician may say that he never heard the music which is written on a paper which lies before him, still the sight teaches him a new tune. The sight may suggest to him how to sing the tune; but, till he sing and hear it, the sound will not be known to him in any particular in which it is new; nor can the sight suggest to him how to sing the tune, if it is more than a new combination of known sounds. Pictures can represent a lady in the act of singing or playing on a harp; or children shouting; or a thunder storm; and the pictured sounds may be as intelligible to the intellect of a connoisseur of painting, as the sounds of written syllables; yet persons who are not connoisseurs may look and not be conscious that the painter designed to communicate any sounds. We are so accustomed to the communication of sounds by written words and written music, we can hardly conceive that seeing is as incompetent to inform us of sound as feeling is, whose incapacity seems obvious. Blind persons, however, read by the touch; and to them, the proposition that feeling can inform them of no sound, may be as perplex-

ing as the annunciation is to us that seeing can inform us of no sound.

When I hear any sound, I can usually determine whether it proceeds from the street, the room in which I am sitting, the room above me, or the room below:—hearing seems, therefore, to inform me of the place in which the sound is located; but place is a sight or a feel, or both; hence if hearing can inform me of place, one or more of my other senses can inform me of what hearing can inform me of, and the theorem is falsified. Children gradually learn by experience to locate ordinary sounds, and probably soon believe that the location is a perception of hearing. Ventriloquism and mimicry impose on us by artificially producing the modulation that is usually connected with the location that is feigned; but ventriloquists cannot impose thus on very young children, they not having acquired the knowledge which constitutes the deception. The inability of hearing to locate sounds is often forced upon our notice. A person who first hears what is called the death watch, will derive from hearing no intimation of the location of the sound, and his intellect will eventually locate it in the causative insect, by only a series of experiments. Every man occa-

sionally employs much time in attempting to discover the location of some unusual sound, and eventually discovers it in perhaps some opening through which the wind is playing an æolian tune. A child three years of age may have learned to locate all the sounds that are heard in his nursery, but when he wanders into the street, and has to cross an intersecting thoroughfare, no sound of advancing horses and carriages will admonish him to look up the avenue and see the impending danger. Location is, however, only one of the numerous intellectual indications which we seem to hear. The report of musketry, the pattering of rain, the crackling of burning wood, a groan, a sigh, a laugh, indicate severally to the intellect much that is not sound. A man's knowledge of the indications is usually modified by his accustomed avocations or other peculiarities. The blind depend on hearing for information which other persons obtain by seeing. To a sailor, the wind whistles information that is unintelligible to a landsman. To a goldsmith, sound reveals whether a coin is genuine or counterfeit; to a farmer, whether a scythe will admit of an edge suited to his uses; and to a watchmaker, whether a watch will keep good time. Physicians have but recently as-

certained by sounds, the presence of air, water, obstruction, &c., in the lungs, heart, thorax or abdomen; and a surgeon can make our bones produce sounds that will tell him when the bones are fractured. But let no man suppose that hearing reveals to us any of the foregoing facts. They are indications which the intellect must learn by experience. Fractured bones crepitated long before the sound was known to signify a fracture. Our reliance on the indications of any sound is graduated by the uniformity therewith of our experience; hence when we hear thunder, we know that some cloud overcasts the horizon. Children derive no such information from the sound. To them thunder is simply a sound, like the word of an unknown language.

§ 2. During the stillness of night we hear many sounds which are unnoted during the day, and being thus unusual, they are heard with no accurate knowledge of their location or other concomitants. Our intellect is, however, organically compelled to locate and interpret them according to some analogy which it perceives between the sounds heard and others whose locations, &c., experience has taught us. Females being organically more timid than men and less experienced, are often much

alarmed by such nightly noises; but the intellect's interpretation and location of unusual sounds, ought in no case to be taken for more than a guess, which is less likely to be right than wrong, —the intellect being organically unable to originate new sensible information. As a general rule, therefore, unusual sounds alarm a person in proportion to his ignorance of the foregoing principles.

§ 3. The testimony of a man to the hearing of a sound is more authoritative than his testimony relative to the location of a sound. The hearing is a direct perception, while the location is only an inference of his intellect, and dependent for accuracy on the testifier's sensible experience and intellectual acuteness; hence of two witnesses, equally experienced, one may possess so much intellectual superiority as to make his testimony more reliable than the other's in locating any sound heard by both. This difference in men is well known in courts of law, but the general difference between what is intellectually conceived and sensibly perceived is too little understood any where; and to discriminate them is one of the chief benefits that I expect from the present disquisitions.

THEOREM XI.

ANYTHING which smelling informs me of, no one or more of my other senses can inform me of.

COMMENTS.

1. The intellectual indications of smells discriminated from what smelling perceives.
2. The nature of language elucidated.

§ 1. In our remote settlements, the ordinary conveniences of civilization are often unattainable by the inhabitants, who accordingly employ splinters of wood as substitutes for candle-wick, and a cleft board for a candlestick; so persons void of sight, employ hearing to obtain knowledge which men better organized obtain by seeing. A girl in a charitable asylum of Massachusetts, who is blind and deaf, employs the sense of smelling to supply the absence of sight and hearing; while in men ordinarily, the activity and manageability of

seeing, hearing, and feeling leave smelling but little to indicate except the unsuitableness for food of articles deteriorated by age or accident. What odours can indicate to a man, who should devote himself to the discovery, is not to be imagined *à priori* with any approach to accuracy; and such a man would probably acquire knowledge that would seem like magic to other men. I have seen persons ascertain by smell the kind of dye which had been employed to colour woolen cloth, and thus learn incidentally the cloths' durability. Some diseases are indicated by the odour of the patient's excretions; and smell is the sole, infallible indication against premature inhumation.

§ 2. I probably need not explain further that whenever smelling announces as above, what any other sense can inform me of, the smell merely indicates to the intellect what we have previously experienced. The smell in such cases becomes a natural word, and the intellect understands it as a word. This would be too plain to dwell on but for one difficulty:—an orange is sensibly a sight, a feel, a taste, and a smell; but the intellect conceives them to be a unit, and to this intellectual unit the word orange ordinarily refers; hence a man void of sight, taste, and touch, might still

know an orange by the smell, and would thus seem to acquire by smell the information another man acquires by sight, touch, and taste; while all he would truly know would be the odour and the name.

But can the existence of an external universe be known to a man who should possess no sense but smelling? This puzzle is like the foregoing. Externality is a unit conceived by the intellect, and ordinarily no smell is included as part of the unit. A man who restricts its meaning to sights and feels, may affirm that smelling can communicate no knowledge of externality; while a man who includes smell as part of the unit, will insist that smelling can announce externality. Such are some of the puzzles which originate from our not discriminating between the intellectual meaning of a word and the sensible meaning. In the intellectual meaning of externality every man can include what he pleases, while the sensible meaning exists as our senses reveal and irrespective of language.

If you place a grain of musk in a phial, and hermetically seal the phial, you will soon smell the musk notwithstanding its confinement. The intellect conceives an analogy between the pas-

sage of the odour through the glass, and the passage of water through a sieve; hence we apply the word passage to both cases, though the passage of the odour is a smell and the passage of water is a sight and feel. The intellect of a child will see an analogy between the two passages, and will therefore understand when you tell him that the odour passes through the phial, and he will become surprised thereat only when you stultify him by the belief, that the passage of water and the passage of the odour are not merely analogous intellectually, but physically identical. A better use of the experiment is to elucidate therewith the nature of language, and for that purpose I adduce it.

THEOREM XII.

ANYTHING which tasting informs me of, no one or more of my other senses can inform me of.

COMMENTS.

1. Phraseology is prone to spontaneously designate our different inlets of knowledge, and lexicography in its definitions might advantageously imitate the example.

We look at the gills of fish, and finding them white, turn from them with loathing, as though we saw the taste of incipient decay in the colour. We talk of green fruit as though we could see in the colour, the sourness with which it is associated; but the green of turtle is spoken of as though we could see therein its delicious flavour. I have seen potatoes, whose green hue seemed a sufficient indication to any person that the taste was coppery; but children will place on your

plate a green potato with no consciousness that the selection is bad. Should I see a number of flowers, I could readily select by sight the flower from which a particular odour emanates. This knowledge every person knows to be experimental, but all the foregoing are the same.

The word external is usually limited to a given perception of seeing and feeling; hence to say that tasting cannot inform us of externality, is merely to say that tasting can inform us of no sight and feel; still, many persons who may turn with disgust from so simple an announcement, may hear with astonishment, that tasting can yield us no intimation of the existence of an external universe. Deity, death, and pain, are words, which, equally with external, name, ordinarily, no taste; hence, if we can imagine a man who shall be void of all the senses but tasting, he will know nothing of an external universe or of Deity, death, or pain. To know which of the senses (one or more) any word refers to for its signification, would not merely save us from astonishment at propositions like the foregoing, but the information might be advantageously employed to add definiteness to lexicographical definitions. Phraseology spontaneously adopts such designations by speaking of a rainbow as a

beautiful *sight;*—of thunder as an awful *sound;*—of cramp as a painful *feeling;*—of musk as a powerful *smell;*—of bitter as an unpleasant *taste.* Emotional feelings, also, phraseology designates. We say a *feeling* of horror,—a *feeling* of hope, pride, vanity, envy, despair, charity, pity, piety, virtue, &c. Words whose meaning refers to the intellect we designate thereby,—as a *conception* of immensity, a *conception* of futurity, a *conception* of right and wrong, of immortality, justice, &c., &c. When I am in doubt as to the meaning of a word, I habitually trace it thus phraseologically to the organism to which it belongs. Some words refer to two organisms, and hence possess different unverbal meanings. We may talk of a *feeling* of virtue, and a *conception* of virtue;—a *feeling* of pride, and a *conception* of pride. Thus to discriminate prevents ambiguity, and will often prevent contention. We speak of a *feeling* of belief and a *conception* of truth, thus accurately denoting that belief is a feeling, and truth an intellection. But to feel the truth of a remark, and to perceive the truth of a remark, are common phrases, and hence evince that truth refers to our emotional organization as well as to our intellectual. The dual character of belief explains the scriptural text which

says, "With the heart man believeth unto righteousness." The heart is a Hebraism for the feelings, hence showing that the belief intended is emotional, and not the belief which "The devils may have and tremble,"—and which is probably only intellectual.

THEOREM XIII.

HEARING can inform me of nothing but sounds.

COMMENTS.

1. Words can teach us nothing sensible but themselves.
2. Words are signs to a man of only such ideas as he happens to possess.
3. The emotional consequences of deafness.

§ 1. As we communicate with each other by oral words, we conceive with difficulty that hearing can inform us of nothing but sounds; but whatever any words can communicate to a man more than the sounds of which they are composed, must be something associated in his intellect with the sounds. Suppose x to be a sight, taste, feel or smell which you never experienced, and I wish to communicate it to you by words; the words which I utter will not be x, but their

meaning is x, and so *ad infinitum;* hence x will be still uncommunicated to you, after you have heard all the words I can use. Under this organic disability, newspapers caution in vain the unwary against the tricks of sharpers, and publish in vain the methods by which frauds have recently been committed. A novice reads the account, and resolves he will not be duped by mock auctions, patent safes, or kindred delusions; and this resolution is strengthened by the first acquaintance he happens to pick up when he visits New York; and nothing surprises him so much as to find, when too late, that his new friend is one of the sharpers against whom he had been cautioned.

But suppose I want to communicate to you that "hearing can inform you of nothing but sounds." Hearing will inform you of the sentence when I utter it; but if I want the words to communicate to you something *more than themselves*, the words cannot communicate it when the thing is previously unknown to you; even if the unknown thing be other words. This is the least known of all the inabilities which pertain to words. A sentence is rarely used to communicate itself only, but rather some other thing which the sentence signifies to the speaker; while our organization

sturdily interposes the obstacle, that the words can communicate themselves alone. Nor is the difficulty mended when I seek to explain the sentence by uttering another. The second sentence will usually still mean something other than itself, and the same may be said of all further explanatory sentences *ad infinitum*. When, however, the explanatory sentence is itself the meaning of the sentence that is to be explained, as in definitions, words can inform me of the meaning, because the meaning is the words themselves that I hear; as when I tell you that the meaning of decapitate is to cut off a head; or that the meaning of the Lord's prayer is Our Father who art in heaven, &c.

The principle is conspicuous when I tell a child that three times one are three. He may learn the phrase ever so fluently, but it communicates itself only, not the information that three ones are three,—two and one are three,—one and two are three,—one, one and one are three,—one times three are three:—in relation to all which, a child will readily evince that the knowledge of all the phrases save one, will not teach him the excepted one, though the known phrases may *beget* in a man's mind a knowledge of the excepted one; but

whether they shall beget the excepted one will depend on the hearer's reflections, and he may not reflect. I learned multiplication from a table in which the multiplicator is applied to no figure of a less denomination than the multiplicator itself, and to this day I cannot tell the sum of nine times six, except by the sum of six times nine. Ordinarily after you have taught a child that two halves make a whole, he will be unable to answer when you ask him how many halves are in a whole; hence, after teaching a child that two gills make a pint, two pints make a quart, and four quarts a gallon, we never deem the instruction complete till we have taught him the phrases in all their involutions. So after we have taught a child that verbs agree with their nominative case, in number and person, we continually see that the rule has taught him nothing but the words; and after you teach him twenty applications of the rule, he may not see spontaneously its twenty-first application. I know that a person can apply the rule correctly to cases that never came within his instruction, and may originate a sentence and test its correctness by the rule; but this occurs only after the person's intellect *begets* new applications. We often say of cautionary precepts, that we hope

they may "*beget*" reflections in the hearer. The expression is founded on our practical knowledge of our organization, and except for this capacity in words and phrases to beget (*generate*) reflections, (viz., other words and phrases) in the hearer, the communication of new ideas would be impracticable by words in all cases where the new ideas were more than the words communicated.

The enigma imputed to Columbus, that he could make an egg stand on one of its ends, was supposed by the hearers to be of impossible performance, till they learned the meaning of the assertion by seeing the experiment. You may say that words could have explained his meaning had he said that the end of the egg must be flattened. But such an explanation would have communicated his meaning only because the explanatory words referred to something known to the hearers; in which case, what is new is only the words I hear. A child once asked me the meaning of turban. Could I have shown him one, the answer would have been complete; could I have shown him the picture of one, his knowledge would have been the picture in connection with the word turban; but as I possessed neither, I endeavoured to attach the new word to some item of his knowl-

edge analogous to a turban, and told him it is a cap worn on the head, or a shawl rolled round the head and tied in a knot. The intelligence was effective just in proportion to his knowledge of the things I named. If he knew none of them, my explanatory words would become the meaning of turban so far as he might recollect them. You can, therefore, present to me new ideas, by means of words, when the new ideas are the words you utter; but remember, the words must not be a sign of the idea that you want to communicate; they must themselves be the idea, and such they rarely are; the ultimate meaning of our ideas being usually something unverbal. The ultimate meaning of lusciousness is in the organism of the sense of taste, and the unverbal meaning of the exclamation Oh! is in our emotional organism.

§ 2. Words, as signs of ideas, can be signs to me of only such ideas as I possess. If a shipmaster should communicate to an associate commander by some signal not preconcerted, he would be like a man who wants to communicate to me by words something that the words do not signify to me. But this simile presents the difficulty in a mitigated form — the associate commander will know that the signal is insignificant to him, but

your words will be signs to me of some ideas that I possess, and I may not know that they are signs to you of some idea I possess not; hence ideas essentially new can be communicated by words to children who are *tabula rasa*, and to illiterate persons, more readily than to learned men. The child's intellect may chance to conceive the ideas that you wish to communicate, but a learned man will interpret your words by ideas already possessed by him; not readily believing that any other ideas exist. A learned man once said to me, that as soon as he read a few pages of any modern speculation, he could discover in it some system of ancient philosophy, verbal speculations not being susceptible of new views. A person imbued with such prepossessions, is clearly unteachable by words.

The above will account for the usual unintelligibility of abstract speculations. The author may accumulate, in explanation, sentence on sentence, but to no intelligible purpose; for each explanation can communicate nothing but the words of which it is composed; while the author means not the words, but certain conceptions which underlie the words. If we study long any such speculations, our intellect may *conceive* a meaning that

may seem applicable to the words in question, and thus we may deem that we have discovered what the author intended. In ninety-nine times out of a hundred, however, the conceptions of our intellect may not be like his. Indeed, so small is the chance that our conceptions are his meaning, that any imputed absurdities which in such cases we are apt to discover in an author, should admonish us that we have not yet conceived aright his meaning; few men meaning any absurdity when their meaning is known.

To leave this important topic in the most definite position in which I can place it, I will state generally, that no word or words can communicate to me,—

1. Any sight which I have not seen.
2. Any feel which I have not felt.
3. Any taste which I have not tasted.
4. Any smell which I have not smelt.
5. Any sound which I have not heard, unless the communicating words be the sound.
6. Any thought which I have not known, unless the communicating words be the thought.
7. Any reflection which my intellect has not made, unless the communicating words be the reflection.

8. Any emotional process that I have not experienced.

9. Any intellectual process that I have not experienced.

In short, no words can communicate to me anything (except themselves) that is unknown to me. Words may, however, beget in the intellect new conceptions, both verbal and unverbal. The smallest change in the position of the pieces that compose a kaleidescope will construct a new image; so often the smallest change in the position of the words that compose a sentence will originate a new idea to even the author himself. A person much accustomed to emendation will, during the progress of composition, be indebted to the emendation for many of the new ideas which may constitute the chief merit of his production. The obliteration of a word, or the addition of one, will often, to the surprise of the writer, occasion the conception by his intellect of a new idea.

§ 3. But irrespective of both the intellectual and sensible import of words, loud exclamations of anger produce an emotional effect on the person addressed. A child on the day of its birth, will start on the happening of a sudden and sharp noise, and long before children understand any

language, singing lulls them to sleep. At a more advanced age, they will listen daily to the same story, it affecting them emotionally as music, not intellectually as words. The privations of hearing, in deaf mutes, we usually estimate as only intellectual and sensible, though the emotional consequences must be extensive.

THEOREM XIV.

SEEING can inform me of nothing but sights.

COMMENTS.

1. The sensible universe analysed into its sensible elements.
2. Sensible elements discriminated from intellectually conceived integers.
3. Intellectually conceived analogies discriminated from sensible identities.

We believe with difficulty that seeing can no more inform us that a stone wall is tangible, than it can inform us honey is sweet. If, however, visible things were associated with a taste, as uniformly as every visible thing is associated with a feel, we should believe that we see sapidity in the moon and stars; as we believe we see tangibility in them. Against the existing belief, I wage no controversy, but men rarely appreciate the generic

difference that exists between a tangibility thus inferred by the intellect in the moon and stars, and a tangibility perceived by the sense of feeling in a stone wall; the two tangibilities being estimated by their verbal or intellectual identity rather than by their unverbal generic difference. My speculations keep the universe, as revealed by our senses, distinct from the universe as conceived by our intellect; and to manifest the unverbal distinction between the two, is one of the benefits that I claim for the theorems. Thunder I designate as the sound thunder,—lightning I call the sight lightning, and by persevering in a like designation to all sensible things, they become apportioned among the five senses. The designation enables us to ascertain definitely the effect on our knowledge of any organic deficiency in the number of our senses.

§ 2. But a further utility of the designation is perceptible when we speak of objects that are revealed to us by more senses than one; as, for instance, when we speak of oranges, which are known to us through the agency of seeing, tasting, feeling, and smelling. A blind man will know nothing of the sight orange, while a person void of the sense of smelling will know nothing of the

smell orange, and a man void of tasting will know nothing of the taste orange. An orange, therefore, is only intellectually a unit, but sensibly a congeries of units, as dissimilar as the information of four different senses. If we fail to understand that the name refers to only the intellectual unit, we may mystify ourselves by wondering whether the feel, or the sight, or the taste is the orange; and if they all constitute the orange, how is it a unit? We are evidently seeking sensibly a unit which exists intellectually only.

But some intellectually conceived units are more multiform sensibly than an orange. Man is such a unit, and his oneness comprehends sensible ingredients whose names fill an anatomical dictionary; intellectual powers with which psychologists may fill another dictionary, and emotional manifestations that may fill a third. I could compose with these ingredients a contrast between a man's multiplicity and his oneness, (deeming the oneness an inextricable physical mystery,) whereas the contrast is only a speculative puzzle, which consists in our mistaking an intellectually conceived unit for something different from a conception of the intellect.

§ 3. As we mystify ourselves by not discrimi-

nating an intellectually conceived oneness from a sensible oneness, in the ways just explained; so we embarrass our speculations by not discriminating intellectually conceived relations from sensible relations in the following ways:—when I say my hand is in my glove, the word *in* is a sight and a feel;—when I say whiteness is *in* snow, the in is a sight only;—when I say sweetness is *in* sugar, the in is a taste;—and when I say fragrance is *in* roses, the in is a smell. The intellect organically sees an analogy between the perceptions referred to by these several ins, and this analogy dictates the application of the word indiscriminately to sights, feels, tastes, smells, &c.; but if we look in these sensibly diverse ins for a sensible identity, we are seeking sensibly for what exists intellectually only; and we may deem the ill success of our fallacious search a great physical mystery, while it is only a speculative blunder.

The intellectual relation denoted by the word in is not limited to sensible perceptions like the foregoing, but is applied equally to intellectual conceptions; as when we say fevers are prevalent *in* autumn; health is often found *in* exercise,—men are stubborn *in* prosperity. If we attempt to reconcile these various ins to some one sensible in,

we are estimating unverbal things as the signs of words, instead of estimating words as the signs of unverbal things. The in which the intellect conceives, is subjective and pertains to the intellect, while every sensible in is objective, and pertains to just what our senses perceive in the sensible universe.

When we see a shadow on a wall, we know it indicates that some opaque body is intercepting the light which is shining on other parts of the wall, and when we see a dark spot on the moon, we know it indicates analogically that our earth is intercepting the light of the sun from shining on the moon. The two cases are alike in the contemplation of the intellect, but in contemplation of the senses, the cases are very different. If no moon had ever existed, the shadow on a wall would still have indicated the interception of light by some opaque body; but if no shadow on a wall, &c., had ever existed, no eclipse of the moon would have indicated the interception of the sun's light by the earth. We may well believe that a shadow on a wall will always indicate some opaque body in interception of the light which is shining on the unshaded part of the wall; but that the intellect will always deem an

eclipse of the moon indicative of the interception by the earth of the sun's light is by no means certain. The eclipse of the wall, so to speak, and the eclipse of the moon, are, therefore, generically different,—what relates to the wall being sensible, and what relates to the moon being intellectual.

THEOREM XV.

SMELLING can inform me of nothing but smells.

COMMENTS.

1. The natural language of smells.
2. The sense by which we measure anything is usually different from the sense that supplies the object to be measured.

§ 1. Any person who abstains wholly from vinous and alcoholic drinks can usually detect, by a given odour, the approach of a man who has been drinking and the character of the liquid, how slight soever may have been the potation. A man's intellect soon connects thus with the perception of an odour all his experimental and other knowledge that relates thereto; hence every sense yields us information beyond the direct perception. Probably every odour, pleasant as well as unpleasant, may, by our acquiring a knowledge of its con-

comitants, become a sort of word indicative of much useful signification. The repulsiveness of some odours may tend to hide from our acquisition much useful knowledge, and physicians have learned only compulsorily that some specific morbidness, in parts which no eye can see or hand touch, may be ascertained by the odour of certain natural excretions. No man is so ignorant as to lie in bed at night unroused by the smell of burning wood, but a child might discover therefrom no intimation of approaching danger. An odour may be long known to a man before he may know that it indicates any other thing; and when the knowledge of what it indicates is acquired, he may suppose the knowledge known to others, or too trivial to divulge; hence much valuable information connected with all our senses may perish constantly by the death of the possessor. The visible expansion and contraction of fluids have always been associated with heat and cold, but as thermometers are a modern invention, we may infer that the visible expansion and contraction of fluids were long seen before their indications were understood; and certainly before the knowledge was promulged. The visible contraction in the fibres of hemp and flax has always been associated with a humid at-

mospherc; but the contraction has not always been understood as an indication of humidity.

§ 2. A thermometer which measures heat (a perception of feeling) speaks to the sense of seeing; though probably if men had endeavoured to originate a measure for heat, they would have sought one among the perceptions of feelings, as we seek our measures of the intensity of light among the perceptions of seeing. Judging from analogies, we shall never obtain a good photometer till we chance to discover, in connection with light, something perceptible by feeling, or by some sense other than seeing. The rapidity (sight) of the circulation of our blood is measured by counting the pulsations (feel) of the arteries; the density (feel) of fluids is measured by the visible buoyancy (sight) of some object that is cast into the fluid; the emptiness (feel) of a cask is indicated by the sound which it will emit when struck:—all being cases in which the measure is generically different from the sense which furnishes the object to be measured. I have seen farmers who were purchasing cow-bells, (bells of a peculiar shape fastened on cows that are to run at large in the woods,) ascertain the relative goodness of the bells by jingling them over a hat whose crown rested on the hand of the ex-

perimenter. The bell whose sound produces the greatest concussion to the hand on which the hat rests, is the one whose sound can be heard at the greatest distance. In this case a feel is the measure of the sound. The purity of atmospheric air for the purposes of respiration (a feel) is indicated by the ability of the air to support combustion, and which ability speaks to the sight.

In the same way I ought to discuss the correllative theorems:

Feeling can inform me of nothing but feels.

Tasting can inform me of nothing but tastes.

Where these or any of the theorems seem to be violated, we shall probably evolve much useful information in attempting to reconcile with the theorems the seeming violation; for the reconcilement will usually make us acquainted with some latent ambiguity of language.

Part Second.

OF THE EXTENT OF SENSIBLE KNOWLEDGE.

THEOREM I.

ANY sight which seeing has not informed me of, is unknown to me.

COMMENTS.

1. Sensible knowledge discriminated from intellectual knowledge.
2. The intellectual injury from the privation of any sense.

§ 1. The preceding theorems relate to our acquisition of sensible knowledge; the present theorem, and some succeeding ones, show the extent to which sensible knowledge has been acquired by any person. Words name intellectual identities rather than sensible identities, hence a man who estimates his sensible knowledge by words, will possess a very inadequate estimate of the extent of his sensible knowledge. The Siamese twins are boys connected together at the breast by a car-

tilage four inches broad and two thick. The ligament looks like a man's wrist, and is six inches long, and so flexible that it permits the twins to stand abreast of each other; though when it is not curved, they face each other.

The above words name sights that separately are known to you, but should you thereafter see the twins, you will admit that seeing revealed to you what you had not known previously. The description may enable a painter to delineate the two boys, still so far as the picture will constitute a sight which the painter never saw, the sight of the picture will be unknown to him till he has seen it. Painters are accordingly accustomed to look anxiously at the result of their pencils to learn the appearance which their efforts have produced. The twins are in complexion, features, and contour, unlike any other boys I ever saw; hence, in even the word boys, much difference of sensible meaning may exist between any speaker and hearer, and the difficulty increases as the words of any description name objects more sensibly diverse than boys. As white as wool is a scriptural expression, which originated where wool was probably the best general explication of whiteness. A few individuals may have seen snow, but they

could by no verbal description communicate a knowledge of its whiteness to those who had not seen it, and all would speak of whiteness as something known in common.

I take my children to New York while they are young, that they may acquire a sensible meaning to the word ship, sea, city, travelling, steamboats, railroads, crowds, theatre, &c., whose meaning they can otherwise know only verbally and intellectually. The few ships which the excursion exhibits to them will make their sensible knowledge of ships conform but little to the knowledge of a ship builder or sailor; still the children will converse about ships with no apparent difference of sensible meaning from the sailor or shipwright, and this is only a type of the mode in which we all converse with each other on all topics in entire unconsciousness usually that our knowledge is not sensibly identical. All objects to which men apply the word ship, possess some sensible resemblance, or the intellect would not have classed the objects under a general name. Men are the authors of such classifications, and the intellect dictates (usually without any artificial concert between different persons) what shall be classed together; but whoever estimates the sensible sameness by

the verbal identity of their common name, will commit the error of mistaking for physical what is only intellectual. In conversing with children, we unpremeditatedly appreciate the difficulty of their inexperience; but in conversing with men, we rarely appreciate the difficulty, though the principle is ratably as applicable to men as to children.

Books of travels are designed to communicate sights which the reader has not seen, but the sensible signification of language is strictly limited by the sensible knowledge of the hearer. The moment the described new sight is seen, the verbal description extends in sensible signification, so as to embrace the new sight; while previously, it signified nothing sensible but the sights, how defective soever, which you then knew. Locke supposes that a person acquainted sensibly with the colours which compose a rainbow, can by the names of such colours in a verbal description, be made visually acquainted with a rainbow. The verbal description will give such a person's intellect a good verbal definition of the word rainbow, but it cannot communicate the sight to the extent that it differs, in any manner from the sights he already knows. Pictures are often employed to

communicate sights in aid of language, especially by travellers; but no picture can communicate any sight but of itself. Men, trees, houses, &c., are so often depicted, that the representation is become a species of hieroglyphics whose meaning is known intellectually how rudely soever represented sensibly; but children who have not learned the intellectual meaning, may see in even a well executed picture thereof, no resemblance to horses, houses, trees, and men,—still less to snow, water, sunshine, moon, fire, metal, and lightning. In every particular in which a picture constitutes a sight that is not identical with the sight represented, the picture will fail to communicate the represented object. The picture of an unknown sight conveys to me nothing but itself. This renders a portrait a poorer preservative than is commonly supposed, of a portrayed individual's sensible appearance. While people exist who have seen the original, his portrait recalls to their intellect, his features vividly; but to subsequent generations of men, the picture exhibits sensibly nothing but itself. The more elaborate may be any description, pictorial or verbal, of a show or public exhibition, the more we desire to view the original, hence evincing practically the inefficacy of any substitute for the

senses. Nothing has been more frequently described verbally, in prose and poetry, than the ocean, or more frequently represented in paintings; still the first sight of the ocean imparts to the spectator, an information which is felt to be new; though he may admit that the descriptions are accurate that he has read, and that he can change no word for the better. The Oriental traveller, Buckingham, in lecturing on ancient ruins, continually elucidated their appearance by sights known to his hearers. When a speaker fails to thus guide his hearers, they will construe the speaker's description by such known sights as the speaker's descriptions happen to suggest; but as the hearer will not know as well as the speaker what known sights are like the unknown, the hearers' spontaneous references will be more defective than the references which the speaker could designate. When a traveller returns home, he has not necessarily increased his vocabulary, but only its sensible signification. He could always speak of castles, statues, ruins, &c., with which he fills his itinerary; but let him not suppose that his new sensible meanings can be communicated by any other process than the actual

gaze which alone infused the new meanings into him.

§ 2. Nearly all words that are applied to tangible objects, as distance, magnitude, round, flat, gold, horse, ship, include an associated sight as part of the sensible meaning of the words. Our prepossessions in favour of the information of feeling over the information of the other senses, induce us to limit the signification of such words to the feels; hence the blind seem to understand the words as we, though the words are known to them shorn of half their sensible meaning.

Another large class of words derive their literal signification from sights, but are applied adjectively to the information of other senses; as brilliant, bright, clear, handsome, comely, ugly. These words are frequently used by the pupils of our asylums for the blind. Whether the pupils are taught that their appreciation of the words must be sensibly defective, I am not informed. In relation however to this class of words, the appreciation thereof by the blind must not be estimated by a limitation of the words to sights only. The intellect sees an analogy between its own operations and sights, hence we talk of seeing the cogency of an argument, and the brilliancy of a re-

partee, &c. These intellectual meanings the blind can attain as well as we, and thus many words appropriated to sights may be understood by the blind with a meaning that is analogous to sights, our intellect being the judge.

Another class of words, such as telescope, microscope, lens, mirror, spectacles, map, picture, landscape, name tangible objects, but derive their principle signification from the visual uses which the tangible objects subserve, and which uses, being unknown to the blind, must make the appreciation of such words by the blind more imperfect probably than their appreciation of the former.

THEOREM II.

ANY feel which feeling has not informed me of, is unknown to me.

COMMENTS.

1. Words are sensibly intelligible to a man of only such feelings as he has experienced.
2. The intellectual signification of words discriminated from the sensible signification.
3. Intellectual intimations discriminated from sensible revelations.

§ 1. When I see surgical operations, my intellect learns thereby the visible effect on the sufferer, and the audible effect, so far as he expresses any sound; but I can learn no feel that I have not felt. The principle is general, hence language is unintelligible to me in its sensible signification when it refers to feels that I have not experienced; though to the extent that I have felt an-

alogous feels, my meaning of the words will approximate to their true meaning. The sensible experience of two men is rarely identical; but the differences are usually not sufficient to produce much ambiguity in their ordinary intercommunications. Our nomenclature of pains might alone enable us to infer that each man's personal acquaintance with pains was limited to his own experience, for we talk of headache, toothache, stomachache; designating locations rather than feelings; and of throb, ache, shoot, acute; designating classes of pains, not particularities; or of gnawing pains, piercing, lancinated, stitching, burning, scalding pains; designating only effects of general processes to which the pains we would designate are deemed analogous. When, however, we speak of weight, we designate it to a grain; or of distance, we designate it to the thousandth part of an inch; practices which evince that weight and distance, with their divisions, we can manifest to each other specifically. When, therefore, a person says words cannot convey his feelings, the obstacle is in our organic inability to communicate to a man feelings he has not felt.

§ 2. When we handle a stone and feel hardness, we may be said to know, without further

information, every hardness; and after feeling has informed me of roughness, it is known to me in the skin of a rhinoceros that I have never felt, as well as in the tongue of a cat which I have felt, while sensibly we can know such feels only as we have experienced,—the identity of every roughness being only a conception of the intellect. The inhabitants of the tropics and the inhabitants of the polar regions, speak not merely alike of cold weather generally; but of very cold, exceedingly cold, intensely cold. The poorest tenant of a log hut will discriminate some items of his food, as good, very good, excellent, delicious, rich, luscious, sumptuous; hence a sermon that should be preached in the most fashionable church of London against excessive dress, extravagant furniture, dissipation in visiting and dancing, indulgence in delicacies of eating and drinking; may be preached with equal verbal pertinancy and intellectual cogency in every age and in every place. I have heard such sermons in neighbourhoods where the itinerant missionary, addressing his congregation seated on wooden benches in a district school-room, lighted with a few tallow candles in tin candle-sticks, has made many a poor female auditor feel self-condemned at the pound of loaf sugar she recently

purchased, or the new ribbon worn by her ambitious daughter.

§ 3. In the foregoing instances, we fail to discriminate the sensible meaning of words from their intellectual meaning; so the following examples will show that we fail to discriminate intellectual intimations from sensible revelations. When I am at sea and behold a distant beacon, the sight intimates to my intellect that a tangible body is the source of what I see. The sight may indicate no such fact to an inexperienced child; but when we look at the moon, few persons discriminate its indicated tangibility from tactile perception. The intellectually conceived tangible magnitude of the stars and tangible speed of light, signify sensibly certain sensible revelations that are not tangibilities; but we rarely discriminate the intellectually conceived tangibility from a revelation of feeling. Children led by this intellectual prepossession, will, with entire unconsciousness of any delusion, deem a rainbow tangible, and chase after it if you suggest the action. Younger children evince the prepossession in their attempts to grasp a shadow on a wall, or the figures of a painting. If you fill a bladder with air, and place it in the hands of a child, he will deem the feel conclusive that the contents

possess visibility; and when the wind blows against us so that we can scarcely resist its pressure, the invisibility of our seeming ghostly assailant would overwhelm us with superstitious terror, were we not familiar with this exception to the accustomed association of visibility with tangibility. So you may occasionally feel something crawling over your neck, and scarcely credit a companion who informs you that nothing is visible, his negation seeming like a contradiction of your feelings, rather than the announcement of a misconception of your intellect.

I omit comments on the following correllative theorems:

Any taste which tasting has not informed me of, is unknown to me.

Any smell which smelling has not informed me of, is unknown to me.

Any sound which hearing has not informed me of, is unknown to me.

THEOREM III.

SEEING cannot inform me how to make any sight, sound, taste, feel or smell.

COMMENTS.

1. Of the acquisition of muscular knowledge.
2. Our muscular performances daguerreotype our muscular powers.
3. An organic sympathy aids muscular instruction.

§ 1. We place before a child the most simple marks into which written letters can be resolved, supposing they will yield him some instruction in making resembling marks; but they can no more yield him such instruction than to see a saddle can teach him how to make a resembling saddle. Such is the condition of a child *à priori* of all experience, but when we begin to teach him penmanship, he has usually learnt how to produce marks similar to some part of the copy. He may not

know how to write the letter *a*, though he may know how to write *o* and *i*, which constitute *a*; hence all in *a* that will be new to him, will be the junction of the *o i*, which simple addition to his existing knowledge, is acquirable by only some random effort. The result of a first effort will be rude in proportion generally to the experimenter's inexperience in analogous results; and this gradual development of muscular skill, no brilliancy of intellect or expertness of physical organs can avoid. If I see a man produce a sound by striking a drum, I shall know how to imitate it, if the sound is produced by some muscular action which I know how to produce; but when the imitation requires any action that is unknown to my experience, seeing the sound produced may inform my intellect how the sound is caused, but not inform my muscles how to cause it. To strike a drum may, therefore, yield less information to an infant in relation to the mode of imitating the simplest sound, than to see me beat a reveille may teach an adult how to imitate the reveille.

When a learner attempts to delineate a rose, he is assisted more by seeing the picture of a rose than a natural rose; for before he can delineate from a natural rose, he must know what marks will effect

the delineation. This, the picture will teach him. No man can tell originally that any mark which he is about to make, will resemble in appearance an upright post, much less a rose. When a learner has succeeded, after many efforts, in accomplishing any required imitation, he may have made the muscular effort so much at random, as to be unable to premeditate it subsequently; and he will usually succeed many times by random efforts, before he will learn to premeditate the proper effort. Some instructors will guide the learner's hand, and constrain it to make the required motion; but this will not accomplish the instruction, which consists in knowing how to premeditate the motion without constraint. A surgical student may see any number of amputations performed, and yet be unable to perform them, being ignorant of the muscular skill that the operations require. How to take up a spoonful of soup and place it in our mouth, the blunders of children evince to be a tedious acquisition; and a man as inexperienced as a child, would be equally awkward, except as he may know analogous operations. Travellers recount the awkwardness of their attempts to eat with the chopsticks of Chinamen, and the difficulties which Chinamen experience in attempting to

eat with forks. The strangulation which infants suffer when we feed them, shows that even deglutition is an acquired art. An analogous difficulty occurs when men, unaccustomed to such drinks, attempt to swallow alcohol or wine; the drinks requiring a peculiar deglutition which must be learned experimentally before it can be premeditated. A good portrait painter may be unable to paint landscapes; a writer of good Roman text may be unable to write German text. Every word that we utter results from muscular efforts which hearing nor any sense can reveal to us, and which must be learned experimentally by each man for himself; and by random efforts till he chance on the required ones. Estimating thus as an acquired art, the threading of a needle, drinking, walking, climbing, speaking, singing, writing, painting, reaping, and all other voluntary physical capabilities, we may well admire the most humble person.

Celebrated painters, actors, &c., cannot reveal the cause of their superiority. They can reveal effects only, of unrevealable efforts, whose results were a surprise to the originator. An opinion prevails that the performances of such artists require an uncommon organization; while ventriloquism, mimicry, and some other arts, are supposed to be un-

attainable except by a peculiar few. Possibly, however, ventriloquism, mimicry, excellence in singing, painting, literary composition, &c., may be deemed organic from only the unfrequency of men's efforts to acquire them. Besides, every man knows the elements of all common arts; but ventriloquism, mimicry, singing, &c., may possess elements as unusual to men generally as ventriloquism itself. On this principle, an Englishman pronounces with difficulty a Russian word, none of its elements being like those which he knows; but apart from this accident, the Russian word may be more easily pronounced than the English.

§ 2. A statue, painting, surgical operation a ship, an embroidered handkerchief, daguerreotype the muscular movements of which man is capable, and which the intellect could not have imagined *à priori*. A man born without arms I have seen cut paper, and write by the use of his toes; thread a cambric needle and sew; still scissors, pens, needles, writing, &c., would never have been invented, had all men been organized as the individual in question. We can stand on our hands with our heads downwards and our feet upwards; or gyrate head over heels; still the difficulty of such movements shows they are not within the in-

tention of our organization, and will forever exclude them from general use. We occasionally attempt to imitate other animals in flying, leaping, climbing, running, swimming, crying, singing, &c., but we succeed in proportion only to the similitude of our physical structure to theirs, rather than to any superiority of our intellect. So, probably, such animals cannot imitate our actions from only an incapacity of physical structure.

§ 3. When we hear some peculiar voice or stammer, or see some odd gait or gesture, most people are thereby induced to spontaneously mimick such oddities, and often with much success on even the first attempt. A sympathy, therefore, seems to exist which may give efficacy to muscular instruction, and tend to originate the efforts of children to speak, walk, and move as they see us; and which has occasioned the remark that children are mimicks. The contagiousness of gaping is another phase of the same sympathy; but irrespective of such effects, instruction is useful by teaching us what achievements are within our power.

In the same way may be discussed,—

Hearing cannot inform me how to make any sight, sound, taste, feel, or smell.

Feeling cannot inform me how to make any sight, sound, taste, feel, or smell.

Tasting cannot inform me how to make any sight, sound, taste, feel, or smell.

Smelling cannot inform me how to make any sight, sound, taste, feel, or smell.

THEOREM IV.

THAT of which no one or more of my senses can inform me, is not sensible.

COMMENTS.

1. Our senses cannot perceive causation.
2. Our senses cannot perceive effectuation.
3. The intellect will conceive a causal antecedent of every sensible perception.
4. Man's intellect is adapted to his physical powers,
5. And capable of discriminating between its own conceptions and physical facts.

§ 1. Whatever seems to be physical is intellectual, unless some one or more of the senses can perceive it. Thus tested, causation is not sensible. The senses reveal the sequence only in which events transpire, the intellect supplies the notion of cause. After a child has learned to drag by a

string his toy wagon across the floor, and the wagon becomes accidentally arrested by the leg of a table, the child cannot tell by seeing the contact that it causes the obstruction which he feels; and he will continue to pull the string with apparent wonder that the wagon will not follow. That the contact causes the obstruction his intellect will organically conclude after a given experience; but the senses alone would never arrive at such a conclusion for it is not sensible. The insensibility of causation enables a juggler, without detection, to remove, in your presence, a ball which you may see him place under a cup. You in vain scrutinize his actions, your difficulty consisting in not understanding the causal effect of the actions which you see. A restored blind man would not know the cause of a ball's evanition should he see you remove it by your hands in the ordinary open way. Few people know that any thing is necessary but a vigilant look to detect the cause of table turnings, spiritual rappings, and kindred effects of new sensible operations. When we see a lighted match applied to gunpowder, and see immediately thereafter a flash, we seem to see that the flash is caused by the contact; still, had we never seen the like previously, we should repeat

the experiment to enable our intellect to decide whether or not the contact caused the flash. When an infant opens its hands, and a cup which the hand grasped, falls to the floor, the child's intellect will not infer, from the single experiment, that the fall is an effect of the relaxation of his grasp; or that the fall is an effect of any physical antecedent. Infants learn not early, that daylight is caused by the sun; and were the sun stationary, with no alternation of light and darkness on the earth, the light that thus would have perpetually surrounded us would never have taught us it was caused by the sun. Children learn slowly that the light in their chambers at night is caused by the candles that are burning therein. Were a man to see for the first time the movement of a needle on the approach of a magnet, he would repeat the operation before his intellect would be satisfied that the magnet causes the movement. When, of a dark night in summer, we see fire flies flitting before us, we seem to see that the lights are caused by some external object; but an English gentleman who landed in New York when the yellow fever was raging, and suddenly saw sparks of fire, sent in haste for a physician, supposing that the sight was a premonitory symptom of yellow fever; but on recount-

ing his symptoms, the physician fortunately discovered that the sights were fire flies.

An inability like the foregoing applies to all the senses. Hearing cannot inform me that the neighing which I hear, is produced by the horse that I see; hearing can inform me of the sound only. That the neighing is caused by the horse, is a conclusion of the intellect from what I hear and see. A man often will repeat some exclamation to enable his intellect to decide whether a sound that he hears is or not an echo caused by his own voice; and were a deaf person to acquire suddenly the sense of hearing, it would communicate to him no knowledge that the sounds he might be uttering in conversation were caused by him; and he could obtain the information only from his intellect after a given experience. One experiment is seldom sufficient to teach an experienced person the cause of any given new occurrence, and the aptitude therein of the inexperienced is graduated by their general inexperience. A child who has walked off a platform will immediately, if permitted, walk off again, unconscious of the cause of his recent suffering. At a later period many of his destructive actions, and much of the noise by which he annoys us proceed from the pleasure

he experiences in exercising some causative process that is so familiar to us that we can not easily account for the child's pleasure therein. At every period of life the senses perceive objects only, and their succession, while the intellect conceives the causal relation between the sequences. The offices thus performed by the senses, and the intellect are generically different and inconvertible.

§ 2. Effectuation is not more sensible than causation. A child may burn himself, and not recognise that the pain is an effect of a lighted paper which he is holding. On seeing a child in danger of thus suffering, we, practically aware of his ignorance, snatch the burning paper from his hand. The pain might excite in a child an instinctive muscular release of the paper and cause its fall, but I have seen flies touch the open eyes of infants without exciting any nictation of the eye lid; and I have seen a child hold a bottle so as to pour therefrom ink over his clothes, without his suspecting it to be an effect of his action. The effect of noise in preventing sleep, is not necessarily known to children though they may have been awaked by noise many times themselves. When in playing an elder child pushes a younger, and thereby causes him to fall, the resulting fall is

usually unexpected to the causer. When we are in a ship, and feel the vessel plunge and roll, the feel seems to indicate that seasickness will be the effect; but a child, or an adult inexperienced theoretically and practically in such a matter, might be seasick without suspecting that it was an effect of the motion he was feeling. The inability of our senses to inform us of effects may yield a man some consolation when suffering pains. They cannot inform him what results they will produce, though a physician, whose intellect has seen the effect of given pains, may predict the results. A child who has heard that pain precedes death, will be as likely to expect such a result from an earache as from an inflammation of the bowels.

If a man shut his eyes and abrade a board with chalk, he will, by a seeming intuition of feeling, form some conjecture of the marks which the abrasion will produce; but should a blind man attain sight suddenly, and with his eyes directed thereto, move a piece of chalk along a board, he will not know that the resulting mark is an effect of the abrasion, though his intellect may suspect it. In giving writing lessons to the blind, letters are traced by the instructor on the learner's palm, who strives to make a motion that will produce a like

feel. The resulting appearance (when the motion is performed with chalk against a board) is an incident which the blind man can never know, nor is the knowledge essential. When he can produce at will the required motion, and deem it synonymous with some letter of the alphabet, he has learned all that is necessary.

§ 3. Causation and effectuation are probably suggested originally to the intellect by what we experience almost incessantly in our tactile performances. An animal who could will no effects, (an oyster is almost such an animal,) might possess no intellectual notions of power or causation. To such an animal, events might be purely a sensible sequence without any conceived efficiency in the precedent to produce the subsequent. And in corroboration of this we find that the intellect in its conception of causes is satisfied with none that are not analogous to our tactile modes of effectuation. When, for instance, a horse moves forward and an attached carriage moves with him, the intellect is entirely satisfied with the motion of the carriage as an effect of the horse's motion; and when we see a paper kite in the air, and attached thereto a string in the hands of a boy, nothing is more satisfactory to our intellect than the descent

of the kite as an effect, when the boy is drawing in the string as a cause; but when we see a needle rush towards a magnet, the intellect is not satisfied with simply conceiving that the motion of the needle is an effect of the approach of the magnet, till we conceive, in addition, some emanation from the magnet, that, like the boy's string, pulls the needle to the magnet. To this subjective requirement we owe all our theories, and to the inapplicability of pulling, pushing, pressing, lifting, &c., as causal agents in vital and chemical processes, we owe the difficulty of theorising satisfactorily in relation thereto. In default of the applicability of such agents, every man contents himself with assimilating unusual occurrences to those which are usual; hence some savages who had never seen fire, till a tree was ignited by their European discoverers, thought the destruction of the tree was caused by a furious animal that was feeding on it and growing as he fed. Indeed, every man's causal speculations are modified by only the nature and extent of his sensible knowledge. Since the discovery of galvanism, the intellect accounts for our vital functions on galvanic principles; as it previously accounted for them on chemical principles, and still earlier on mechani-

cal principles; and at one time, on mathematical principles. Earthquakes, which the intellect formerly caused by the struggles of imprisoned Titans, are now improved causatively by our knowledge of gunpowder, steam, and I suppose galvanism, electricity, &c.; for a man's intellect can but suggest to him all his knowledge that it deems analogous to the causation in question. A hound who follows a fox by the scent, will conceive that huntsmen and horses follow by the scent also, if we may suppose that hounds can speculate. If birds possess an intellect that can speculate, its cosmogony will be founded on the incubation of eggs; and its solar system will employ wings as we use gravity; and the system will be as satisfactory to their intellects as Newton's is to ours, both being alike subjective to the conceiving intellects respectively. The artists of Hayti depict angels with the hair, colour, and features of negresses; and could fish design, they would represent angels with scales and fins. I once saw a man who never had hands or arms, and he employed his toes for mending pens, snuffing candles, &c. Had all persons been thus formed, our intellect, in speculating of Deity, would not have spoken of "an outstretched arm" as a

symbol of power, but an outstretched leg. We hear, smell, see, taste, and feel, by physical organs, hence our intellect conceives that intellectual operations are also performed by physical organs. The pineal gland supplied at one time the subjective exigency, but lately the brain has been mapped into physical organs as numerous as the different powers of our intellect. By a like subjective inducement, the intellect attributes to physical organs our emotional feelings, passions, desires, &c., the nerves, heart, gall, breast, bowels, &c., supplying the subjective exigency. The principle manifests itself in the efforts of biographers to give physical insignia of the moral and intellectual qualities of heroes. A late writer says of Washington, "the eyes of the chief were deep sunken in their sockets. His height was six feet two inches. His limbs were long, large, and sinewey; and could a cast have been taken of his *right* hand, so far did its dimensions exceed nature's model, that it would have been preserved in museums for ages, as the anatomical wonder of the eighteenth century." So the admirers of Murat speak of the tall plume which he wore, as though it were as much the organ of his martial prowess, as the long hair of Samson was the or-

gan of his physical strength. The large cloak which Napoleon wore is also become symbolical, and when you meet in military narrative with such a cloak, you may anticipate thereunder a hero who is about to perform some romantic exploit; while in all battles a tall plume "that bobs up and down," is sure to indicate some great generalship. This subjective prepossession in us occasioned probably the sculptured shape of Hercules and Jupiter, and it contributed to the shape which was ultimately given by artists to the head of Napoleon, and which differs much from the early representations of him when he was less eminent. Analogous to these are the looks, gesticulations, and intonations of theatrical performers. Had we seen Mary Stuart conducted to the scaffold, our spontaneous thoughts would have excited in us feelings intense probably in proportion to the victim's mute and ungesticulating forbearance; but when Rachel personates the character, our thoughts will not excite spontaneously in us the desired feelings, and the deficiency must be supplied by the words, intonations, looks, and gestures of the actress, through the subjective prepossession that makes them types of inward feelings; hence, Rachel acts Mary much better, no doubt,

than Mary acted herself, external types being the criterion. When our Saviour was crucified, there was darkness over all the land from the sixth hour unto the ninth; and at the moment He "yielded up the ghost, the veil of the temple was rent in twain from the top to the bottom; and the earth did quake, and the rocks rent," &c., doubtless in condescension to the subjective requirements of man's organism at so great an occasion; and the Scriptures contain numerous examples of the same adaptedness; as, for instance, the making of clay to oint the eyes of the blind, &c.

§ 4. Man's feet, hands, and other physical organs would be useless without his intellect, as we see in idiots; and his intellect would be useless without his physical organs, as we see in persons physically deformed. In the cave of Kentucky, where daylight never enters, the fish which exist in its waters, possess no eyes, for why should animals be organized with eyes that were to be useless? and why should man's intellect be organized to know how worlds are created, or earthquakes, or volcanoes, when neither the power of producing them nor preventing their production is within his organization? Hence I query, much, whether

man's intellect is not limited to his physical capabilities, and whether he can produce anything but a fairy tale when his causal conceptions are applied to operations surpassing his physical powers. The intellect must indeed act whatever duties we apply it to, just as a razor would be unfitted for its proper functions if it would not cut whatever we presented to its edge; but when we employ a razor to cut a cable or an iron bar, the result manifests that the razor was not formed for such purposes; though not more unmistakeably, than our intellectual speculations about superhuman performances manifest that our intellect was not organized for such speculations. A flaming sword guarded the tree of life, lest man should eat thereof and live for ever. The same purpose is as effectually accomplished now by incapacitating our bodies for the creation of such a tree, and the intellect can in vain attempt to speculate about such a creation without producing an absurdity. Generation of men succeeds generation, the perpetuity depending on a due proportionment of the sexes, about which also the intellect inquires in vain, and from no other impediment, I suppose, than that the regulation is beyond man's physical control.

§ 5. But without wandering into speculations like the foregoing, about which men will ever differ, and about which every man may think differently at different periods, we know positively that every man's intellect begins early in life to conceive, by a subjective necessity, that every event proceeds from a causal antecedent, though diseases and other contingencies occur for which we seek in vain any sensible causal antecedent. Now all in causation that belongs properly to my disquisitions is a discrimination between causes that are sensible and causes that are only intellectually conceived. When, for instance, I see you apply a spark to gunpowder, and see a flash ensue, but two events are sensibly discoverable, the intellect seeing, in addition, that one is the cause and the other its effect; but when I see the motion of the sun from the east towards the west, and my intellect imputes it to a motion of the earth from the west towards the east, the motion of the earth and its causal efficiency are both intellectually conceived. The two cases are different, and the intellect readily discriminates between them;—that is, between a causal antecedent that like the spark is sensibly perceptible, and a causal antecedent that like the motion of the earth is only intellectually

conceived. The difference seems analogous to the taste which a man experiences when he places something in his mouth, and the taste which sometimes is experienced by a man when nothing is in his mouth. The taste in one case pertains to the object, and in the other to his organism.

If the foregoing were all the difference between the two cases it would but little deserve our notice, but the intellect permits us to see also, that intellectual conceptions are generically different from sensible perceptions. They differ not in their origin only, but in their kind. When a man deems intellectual and physical knowledge homogeneous, he is ignorant of a distinction as positive as any part of his knowledge, and the ignorance is more bewildering than perhaps any other. That the heterogeneity of the two kinds of knowledge, especially their inconvertibility into one another except verbally, should have remained undetected till the intellect had been led thereby through every conceivable maze of speculation, may have been the intention of Providence; the distinction seeming too patent to have remained undiscovered except to fulfil an organic intention. The intellect can no more originate information *sui generis* with the senses, than the heart can secrete bile or

the liver blood; and accordingly we know that the blind remain for ever ignorant of visible qualities, (sights) and the deaf of audible qualities, (sounds) how brilliant soever may be the intellects of such men. When a blind man feels sunbeams, his intellect may be organically induced thereby to conceive some notion in relation to light and sunshine; but the notion will be a subjective opinion of his intellect, not an objective fact dehors the intellect. So a deaf mute who is seeing people dance, and the visible movements of the musicians and their instruments, may be organically induced thereby to conceive some subjective opinions in relation to music; but such conception can yield him no sensible revelation. Founded on the common indiscrimination between what is intellectual and what is physical, is the following piquant speculation from the "Household Words." It is called "A Scientific Figment," and professes to show that science developes as strange results as the dreams of poetry. The quotation says, "We cannot at our will evoke new forms of vitality, yet we ourselves are undergoing a perpetual decay and reconstruction. We die and are born again, in some imperceptible atom, every instant. That body which was

the conscious and sensitive dwelling-house of our spirit in childhood, and through the gates and avenues of which our soul looked forth upon the outer world, and saw and felt and understood the majestic shows of the universe, and the amplitudes of being—that temporary shell is already in its grave; and the organization which we now possess is the matrix of its own successor. From the continual falling off of old and access of fresh particles, we acquire a perfectly new body once every seven years or less; so that we may be said to be constantly refashioning our own identity. Thus that which seems most tangible and solid fluctuates with treacherous mutability and vanishes even from ourselves; while the inner man remains unmoved in the midst of his sandy and shifting habitation. The creations of romance are nothing to this hourly miracle. The first wild guesses of infantine science, when every laboratory was a haunted chamber in the dark, were not more strange and bewildering." And the writer might have added, that the conceptions of the two periods, being alike subjective, differ only in forms. To suppose either to be objective realities would be as erroneous in the maturity of science as in its infancy. The quotation to which these re-

marks apply, refers to some sensible perceptions, but till our senses reveal to us what is referred to, the speculations are subjective knowledge, not objective;—thoughts, not physical facts.

But whether we will or not discriminate between intellectual conceptions and physical objects, an organic necessity urges onwards the intellect in its causal conceptions without a possibility of its arriving at an end of any series; every cause being bound to have a predecessor till the intellect arrests the progress by a terminus that is itself subjective to the intellect;—as, what is this table made of? Wood. What is the wood made of? A tree. What was the tree made of? So long as the answer is sensible information, the intellect is as little satisfied after a hundred answers, as it was after the first; and the intellect can terminate the category satisfactorily to itself only by conceiving some first cause in an eternal Deity. To such a conclusion, all men in all ages have been led; and to bring us to such conclusion was one of the purposes for which the intellect was thus organized; judging by the same tests that induce us to believe the liver was organized to secrete bile, the stomach to digest food, and the eyes to see light.

THEOREM V.

THAT of which no one or more of my senses can inform me is either intellectual or emotional.

COMMENTS.

1. The congruity of cause and effect is an intellectual conception, and not discoverable sensibly.
2. The compatibility and incompatibility of means to ends are *à posteriori* conceptions of the intellect.
3. Theoretical causation is founded on our physical experience.

§ 1. Though the intellect is slow in deciding on causation and effectuation, as exemplified in the preceding theorem, the intellect sees between any familiar cause and its effect a congruity which induces us to suppose that *à priori* of experience the cause indicates the effect, and the effect indicates

the cause. If, however, horses were produced by snapping a pistol, the production of a horse by such means would soon seem to our intellect as congruous to the operation as a detonation seems now congruous thereto. The size of an animal or object, and the volume of sound that the animal or object produces, are soon deemed by our intellect congruous to each other; though should a deaf mute suddenly attain hearing, the sound of a popgun and the discharge of a cannon, would yield him no criterion to determine which sounding object is greater in visible and tangible size, any more than the sound can teach him the relative colour or fragrance of the sounding objects. When we hear the report of a cannon and a whisper, we seem to know, irrespective of experience, that the cannon can be heard farther than the whisper; but all congruity between sound and distant audibility, is a conception of the intellect *à posteriori* of experience or its analogies. Children learn only slowly and gradually to modulate their voices according to distance, as is apparent when they are required to speak so as not to be heard by persons who are near, or to speak so as to be heard afar. A speaker of any age, who relies on intuition to produce distant audibility,

will be unprepared to address an audience advantageously to himself or his listeners. A cracked bell sounds so as to indicate the crack, but apart from experience and its analogies, the sound would indicate no such defect. The crackling of flame, which when heard at night, admonishes us our house is on fire, would communicate no such information to an inexperienced person. The stethescope, by which physicians ascertain the condition of our lungs, is useless to persons who have not learned what causes its different sounds. I have rarely known a steamboat explosion without learning that persons on board the vessel heard sometime before the explosion, an unusual sound in the working of the machinery. Should we hereafter discover that a defect in steam engines causes any given sound, our intellect would conceive, as in the stethescope, a congruity between the effect and the cause, inducing us to wonder that the indication had remained so long unintelligible. So far as sounds are new, they can convey no knowledge of the cause which produces them. These considerations ought to relieve timid persons to whom, when lying awake at night, unusual noises indicate burglars or supernatural agencies. I have experimented long before I

could trace to its source in a fire screen, window, or open door, some unusual sounds which have excited my curiosity or alarm; though after the cause was discovered, my intellect soon conceived a congruity between the cause and effect that made me wonder I had not recognized the cause. To see a hammer strike the head of a nail, no more indicates originally that the nail will be driven into a board, than to see a hen on a nest of eggs indicates originally the production of a brood of chickens. That every link of a chain will follow, when you draw towards you one of the links, is so analogous to countless other effects that we believe with difficulty it was ever unexpected; but children discover not immediately that a motion in their toy wagon will be a necessary effect of pulling an attached string. The point of a needle seems to manifest to our sight the effect which will result from a pressure against it of our hand, but seeing can not indicate the effect any more than seeing arsenic can indicate the effect which it will produce on our stomach; and a child will press against the needle as fearlessly as he will swallow the arsenic. When we relax our grasp of a stone, its fall towards the earth is an effect so apparently congruous to the cause, that we

seem to need no preliminary experience to teach it to us; and when a horse is approaching us, our safety or danger is so seemingly congruous to the direction he is taking, that we are astonished when, in a like position, a child evinces uncon sciousness of the impending effect. When we lie in bed and feel the effects of cold, we conceive with difficulty that the insufficiency of our covering is not an intuitive perception; but young children, how cold soever they may be, never ask for more bed clothes or warmer dresses, or when suffering from heat, to be relieved from superabundant clothing, or when wet, to be dried. A skillful pilot knows the track of safety when his vessel is to pass an approaching ship, and he may be astonished that the congruity between a given course and safety is not seen by a landsman who may be steering in the path of certain collision. An expert billiard player sees a congruity between his strokes and the progress of the ball he strikes, and he may wonder at the inexpertness of a novice who is striking a ball whither he would not wish it to go. A sculptor sees a congruity between the blow he is striking with his chisel and the effect that will be thereby produced on a statue he is forming; but *à priori* of expe-

rience and its analogies, no man can tell what effect will be produced by any blow.

As the foregoing are but types of a general condition, we need not wonder at the slow progress of physical discoveries, and that men have stopped for ages at the threshold of some important improvement which our intellect now sees was clearly indicated,—the indication being a conception of the intellect *à posteriori* of the improvement. When a philosopher was asked why gooseberries, which grow near the top of a bush, are larger than those which grow near the bottom, he replied that the cause was their greater accessibility to air, rain, light, and sunshine; but, said the querist, I stated the question wrong, the gooseberries which grow at the bottom are the largest. True, said the philosopher, such must be the fact, for they are nearer to the earth and roots. No matter what facts may exist in conjunction, we thus organically see a congruity between them. When the present Emperor of France commenced his political career in the legislature of that country, his conduct was a theme of standing ridicule, but now, after experiencing his achievements, our intellect organically conccives a congruity between his conduct and its effects; and we admire, as self-

evident skill, what, had he failed, we should have deemed self-evident fatuity. The like may be said of all new projectors. We see no congruity between their meditated causes and effects; but when they are reduced to successful practice, we are surprised at the blindness which formerly existed thereon. The most scientific man in England predicted that a steam voyage across the Atlantic was impracticable; and till recently, what could have been deemed by everybody less congruous than lightning to transmit our messages, and less congruous to man's organization than an annihilation of time and space in his intercommunications, and less congruous than steam to supercede the strength and speed of horses. What we call carelessness is often only our organic inability to foresee congruities between given events. An experienced man may see that the manner in which you are carrying a lighted candle, will consume my house, while you, from inexperience, may see no congruity between your actions and danger. The possession of language would not aid infants in expressing their wants till they had learned experimentally that the uneasiness, say of thirst, was caused by a want of drink. The like may be said of the uneasiness caused by a want of sleep,

want of rest, want of evacuations from the intestines and bladder. They will touch something which burns, pricks, cuts, scratches, or otherwise hurts them, and after crying by reason of the pain, will immediately repeat the action that caused the injury, unconscious that it will renew the pain. A child will cry from holding ice in his hand, unconscious that the pain is caused by the ice, or that a relaxation of his grasp will remove the cause. A spontaneous outcry, therefore, on every uneasiness, effects for children more than a knowledge of words could effect; indeed, all that our organization renders useful to the inexperience inseparable from infancy. As experience yields us knowledge of the causes which produce cold, wet, hunger, thirst, weariness, drowsiness, nausea; the feels become a species of language, and intellectually indicate wants, while sensibly, they indicate nothing but themselves. This natural language is susceptible of enlargement by observation. Physicians know the indications of many pains that possess no intellectual signification to unprofessional men.

§ 2. What we have said of the congruity between cause and effect, may be repeated of the compatibility and incompatibility of means to ends.

The barrel, lock, and trigger of a pistol are, our intellect sees, compatible to the end they accomplish; but antecedently to the sensible development of the compatibility the intellect could not see it. If you tell a child that he cannot bite off his own nose, his intellect will not recognize the incompatibility *à priori* of a physical effort to accomplish the performance; and if you tell him to touch the moon, he will raise his hand attemptingly, though his intellect may suspect, from analogous experience, that the contact is not compatible with his means. The anchor of a hundred-gun ship, he may at your request attempt to drag, and if you tell him to catch a rainbow, the appearance will not indicate to him any incompatibility; though in all these cases, his intellect, after having been instructed by physical effort, sees an incompatibility of his means for such performances. When a surgeon looks at a wound, his intellect may see indicated the benefit of uniting its edges, and he may suppose the indication would be apparent *à priori* of any experience His intellect sees, also, the instruments that will facilitate the operation, and he may suppose their origination occurred as soon as the object was known that surgery sought to accomplish, but the

converse thereof is experienced in every art. So nothing is more common after every new artistic discovery, than surprise it should have remained unknown so long; the compatibility of the means to the given end seeming apparent, and we, forgetting that the compatibility is apparent only because it has been experienced.

The intellect's inability to see *à priori* of experience and its analogies the compatibility of means to ends, applies to the conduct of affairs by statesmen, the conduct of private business, the conduct of an army by a general, and of a fleet by an admiral. In the means which a young man adopts to accumulate property, to preserve his possessions, acquire friends or to retain old ones, experienced persons often foresee his pecuniary and social destruction. The difficulty being organic, is unavoidable and universal, and it admits of but little palliation from precept, hence young merchants usually become bankrupt unless they commence business slowly and with petty transactions. The most experienced person sees not the means best adapted to every proposed end, but an inexperienced banker will lose by forgeries and misrepresentations where an experienced banker would see that the securities offered to him are not ade-

quate to his protection. An inexperienced man of any profession becomes the dupe of artifices which more experienced men would understand, and he believes as probabilities what experienced men would know to be improbable. Napoleon saw an adaptation of means to strategical ends which was unseen by less experienced generals, and which he could not have seen while he was inexperienced. The principle applies to physicians in the treatment of diseases, to surgeons in the treatment of wounds, to lawyers in the conduct of a suit, and the eliciting of truth from reluctant witnesses. An author sees an adaptation of his sentences to yield information, while his readers, not knowing the information, will not see the adaptation; and the author's danger of such ill success is imminent in proportion to the newness of his doctrines.

The inability of the intellect to see *à priori* of experience and its analogies the compatibility of means to ends renders society constantly liable to the falsest pretensions in the treatment of diseases, while the uncertainty of the most scientific medication indicates that diseases are either but little within our control, or the adaptation therein of

means to ends is but yet imperfectly discovered. Invalids are often told they must be cautious in the selection of diet, cautious against relapse, over exertion, change of weather, &c.; admonitions which are usually worthless, the invalid seeing no affinity between any acts he can perform and the threatened injury. Indeed, the cautioners are usually as ignorant therein as the invalid, but if a relapse occur, we see *à posteriori* a connection between it and some antecedent act, and assume credit for our admonition as though we had known the connection *à priori*. When a physician claims any such oracular merit, he really condemns himself by not having particularized the danger, and thus have made the catastrophy practically avoidable.

A man would be unteachable except by specific experience, but for the ability of our intellect to see analogies between things sensibly different. The adaptation of a pair of scissors to the ends for which they are constructed, is originally unseen by a child, but after he has seen scissors cut paper, his intellect conceives so many analogous uses, that he may attempt to cut therewith iron or glass. Men differ in the ability to see analo-

gies, some being therein dull and stupid, others quick and bright. In New York, several surgeons assembled to tie a diseased femoral artery, when the operator accidentally severed it. In the general consternation the assistants resorted to different ineffectual expedients, and the patient would have died suddenly from loss of blood, when one of the surgeons took the key of his street door and by forcibly pressing it on to the artery, stopped the bleeding till the artery was tied. The ability to conceive analogies is improvable, hence every man sees analogies which are unseen by persons of other occupations. Much of what is called wit, and much poetic imagery consist of analogies which wits and poets see by means of special cultivation therein.

§ 3. Being unable to conceive, except *à posteriori*, the congruity between any cause and its effect, and the compatibility of any means to any end, the intellect fashions all theoretical causation by the theorist's experience and its analogies; hence the intellect once conceived that acidity is an effect of sharp pointed particles which prick the tongue,—that water ascends in an exhausted tube by reason of Nature's horror of a vacuum,—that

the earth is upheld by the shoulders of Altas, and that the alternation of day and night is caused by the sun's revolutions around the earth. Theories of different periods may differ much in utility and in the sensible facts to which they refer; but all are alike relative to only the sensible knowledge of the age in which they are authoritative. We may see, therefore, why the intellect can form no satisfactory theories in relation to earthquakes,—no effectuation therein more congruous than that of steam or of gunpowder being yet known to the intellect; and these are not sufficiently congruous to earthquakes to keep our intellect from a suspicion of their defectiveness. The creation of man, sea, air, earth, sun, moon, stars, &c., our intellect can still account for theoretically in no way more satisfactorily, than they are accounted for in the first and second chapter of Genesis; while mountains, hills, chasms, precipices, water-courses, cataracts, and the stratifications of the earth, being analogous to our personal performances, can be accounted for more satisfactorily. Like Pharaoh's sorcerers we can account theoretically for all productions that we can imitate, but all that we cannot imitate, we must, like the same sorcerers, ac-

count for "by the finger of God." This ultimate conclusion proceeds from the same organism of our intellect as all other theories, and hence is a part of our speculative knowledge as authoritative as any other.

THEOREM VI.

ALL knowledge which none of my senses nor my intellect can inform me of, is emotional.

COMMENTS.

1. Words are not the ultimate elements of knowledge.
2. Phraseology daguerreotypes man's tripersonality.
3. Phraseology relates to man's organisms.
4. Phraseology is subjective knowledge translated objectively.

§ 1. Multitudes of men know not that water can be analysed. Water is, therefore, one of the ultimate elements of their knowledge, and air is another. Sunshine is to them more or less hot, but it constitutes another of the ultimata of their knowledge, they knowing nothing of its prismatic or other constituents. The like may be said of words. Matter is divisible *ad infinitum*, and multitudes of men know no distinction be-

tween a division referring thus to a conception of the intellect, and the division that refers to a stick which can be physically divided only a few times. They hear that the earth revolves around its axis a thousand miles every hour, and around the sun a thousand miles every minute; and they know no analytical distinction between these revolutions which are conceptions of the intellect, and revolutions which are physical in a coach-wheel;—words being to such men the ultimate elements of knowledge in at least the specified cases. To relieve speculation from this fundamental and pervading error, I have laboured to show that our knowledge is analyzable into three elementary ingredients, intellectual, physical, and emotional; each of which is wholly inconvertible into either of the others, and they differ severally from each other more generically than oxygen differs from hydrogen; the man, therefore, who deems water or air homogeneous, commits a far less consequential mistake than he who deems all divisions or revolutions homogeneous. He is in the condition of a child whose intellect has conceived the existence of a ghost, and who, knowing no generic distinction between what is physical and what is intellectual, expects to see the ghost, or to be otherwise physically annoyed

therewith. The preceding pages treat chiefly of knowledge that pertains to our senses and our intellect, while the present theorem relates mainly to our emotions, and with it the present speculations will terminate.

I have experimented with comparatively few stones, yet I pick one up anywhere with entire certainty that it will fall to the earth when I relax my hold of it. Why am I certain? You may say my intellect knows that like causes produce like effects; but this dogma cannot be authoritative till I have found that the new stone is like the former ones. Here, then, is seemingly a mystery,—experience can give us only specific knowledge, yet it gives us general knowledge; but the mystery disappears when we know that knowledge is sensible, intellectual, and emotional, and that the knowledge in question is only emotional. We know sensibly the fall of a stone that is transpiring before our eyes; we know intellectually the fall that has so transpired; but we know only emotionally the fall that is future. As the fly wheel of a machine supplies a momentum during any momentary cessation of the moving power, so our emotions supply a compensating knowledge during the cessation of our sensible experience.

We may never have fallen into a pit, or off a high tower, yet we have experienced analogous dangers, and a proximity to either a pit or tower exeites organically emotions which obviate the danger. A man in any such position, who should seem regardless of the danger, would be stigmatized as *feeling* foolhardy—the phrase denoting the absence of a proper emotion. Phraseology testifies in the same way that our knowledge is emotional in relation to the future fall of a stone—we *feel* confident, we *feel* sure, we *feel* certain of the fall. A present fall we *see*—thus denoting our knowledge thereof to be sensible;—while a past fall we recollect—thus denoting our knowledge thereof to be intellectual. The famous puzzle of man's inability to prove the existence of an external universe, or even his own existence, is founded on the same disregard of the triplicity of knowledge. The proof applicable to the existence is emotional, (our consciousness) hence the ability to prove is not contradicted, as the puzzle implies it is, by the absence of sensible and intellectual proof.

Shakespeare makes Anthony say to Cleopatra—

> "Though you may know what moderation ought to be,
> You know not what it is."

The knowledge thereof which she possessed was intellectual, but the knowledge she lacked was emotional; the two being generically different, and only verbally identical. Some years ago, a sect existed who believed that the world was forthwith to be destroyed. Their belief was emotional, but the public not knowing that such belief may coexist with an intellectual disbelief, supposed the believers to be either insane or hypocritical. Hudibras says—

> "He who is convinced against his will,
> Is of the same opinion still."

Such conflicts are common. The proof which convinces my intellect that the wife of Thomas is unfaithful to him, may be ineffectual over his emotional belief of her fidelity; though his intellect may be unable to controvert the proof of her guilt, hence "love hopeth all things, believeth all things." I may feel convinced or sure that a person is innocent of an imputed crime, but I may possess no intellectual knowledge of his guilt or innocence. The scriptural exclamation, "Lord, I believe, help thou my unbelief!" refers to an emotional without an intellectual affirmance, and the antagonism is common.

"Shadows to-night
Have struck more terror to the soul of Richard,
Than can the substance of ten thousand soldiers."

In this quotation the distinction is strongly marked between the intellectual personality of King Richard and his emotional personality; nor is a conflict between them, such as he suffered, at all unusual. Given circumstances will, despite the intellect, excite our emotional feelings, and all that the intellect is accountable for is the control which it permits our emotions to exercise over our actions. We accordingly prize but little the courage which results from insensibility or an unconsciousness of danger; hence, a general who was reproached for feeling fear, admitted the accusation, but reversed the reproach by saying that his accuser would have run from the danger had he felt half as much afraid. Nothing makes our knowledge so definite as to know clearly to which organism, intellectual, sensible, or emotional, we are referring on any given occasion. Take, for example, the proverb which says, "As a man thinks, so is he." If the "he" to whom the proverb alludes is intellectual, the proverb asserts a mere truism, that as a man thinks, so is his intellect; but if the "he" alludes to the emotional person, the

proverb is often untrue, a man feeling sometimes very unhappy despite all the thoughts of his intellect that he is happy. To remedy such ambiguity, I suggested in a former publication, that speculatists should place over every predicate some designation of the organism to which the predicate pertains, as orthoëpists place over every vowel some designation of the sound it denotes. In matters not speculative, such a designation is unnecessary, the intellect recognizing readily by the objective concomitants the organism referred to; hence when we are told that "we can see every where the invisible hand of Providence;" everybody knows that the sentence is only superficially solecistic, and that the seeing is intellectual and the invisibility visual. So, without any solecism we may say, "that we feel easy, though suffering great pain." Every hearer will know that the ease is emotional, and hence not contradicted by the pain that is sensible.

§ 2. Having thus endeavoured to contemplate man as tripersonal, sensible, intellectual, and emotional, we may render the division more intelligible by saying that the intellectual person remembers, thinks, reasons, reflects, speculates, guesses, calculates; the emotional person believes, doubts,

disbelieves, hopes, fears, loves, contemns, envies, hates; the sensible person sees, hears, tastes, feels, and smells. The emotional person is more (feelingly) the man himself than either of the other two, our emotions being to the tripersonality what sound is to a piano; while the senses and the intellect assimilate to the keys and strings. When my intellect is uncertain as to the organism to which any word refers on any given use thereof, the forms of phraseology will usually resolve the uncertainty; as, for instance, is doubt intellectual, emotional, or sensible? It is emotional, for phraseologically, we say, I *feel* in doubt, I *feel* dubious, &c. In speaking of sensible things, phraseology almost uniformly designates the sense which is the source of our information; as I *smell* fire, I *felt* an earthquake, I *saw* a volcano, I *heard* thunder, I *taste* pepper. The intellect employs verbs designative of intellections; as I think, I guess, I remember, I reason. The emotions possess verbs designative of our susceptions; as I fear, hope, love, envy, hate, &c. But we ought to note here that the intellect conceives an analogy between its own actions and the actions of the sense of seeing, hence we say indiscriminately, I *see* an argument is cogent, and I *see* a stick is straight;

though one is an intellection and the other a sight. So the intellect conceives an analogy between the sense of feeling and our emotions, hence we say indiscriminately, I *feel* fear, I *feel* pain—the first being emotional and the latter physical; but the intellect of the most uneducated man discriminates accurately in all practical uses, when any word applies to vision, and when to intellection; when to physical feeling, and when to emotional. The evidence of phraseology as to the organism to which any given word refers, is specially authoritative by reason of the spontaneous formation of phraseology. The weather will be cold to-morrow. How do I know? I *think* so, I *judge* so, I *guess* so,—thus manifesting phraseologically that my knowledge in the case is intellectual. But why do I guess the weather will be cold to-morrow? I *see* it in the appearance of the horizon, I *feel* it in my bones, &c.,—thus phraseologically manifesting that the materials are sensible on which my intellect forms its guess, &c.; or I may say that I *feel* a presentiment that the weather will be cold, thus manifesting phraseologically that the materials are emotional on which my intellect forms its guess. When Agrippa said unto Paul, —"Almost thou *persuadest* me to be a Christian,"

the persuasion referred to Agrippa's emotional organization, the phrase being equivalent to "I feel almost persuaded," or "I almost *feel* persuaded." Had Agrippa's intellect been affected, he would have said, I almost see or know your doctrine is true. I know John is guilty, expresses an opinion of the intellect; I believe John is guilty, expresses only an impulse of the emotional feelings, and is compatible with an entire absence of knowledge. The like difference characterizes the common saying, that we cannot forget an injury but we will forgive it; the forgiveness being emotional is measurably within our power, while to forget, being intellectual, is beyond our power. Phraseological distinctions being a dictate of our tripersonality possess an accuracy that exceeds all artificial conventionality, and they are common to the most illiterate people, who, equally with the most literary, speak of hearing fire, seeing fire, smelling fire, thus denoting phraseologically that three senses are cognizant of fire and specifying the senses. Indeed, as geologists examine fossils to learn therefrom synthetically what animal each fossil indicates, phraseology may be examined to ascertain analytically what organism each .phrase indicates,—a fossil molar not being more evincive

of a graniverous stomach, than I hate is evincive of an emotional organism. The indications of fossilogy are a natural history that preceded man's classifications, and the indications of phraseology are an ontology that preceded man's speculations; hence words are both a bane and an antidote—a bane by giving our knowledge a sophistical verbal homogeneity, and an antidote by manifesting its unverbal heterogeneity. "What is truth?" said Pilate. Let us ask phraseology:—That fire will burn my hand is a truth which I can feel, that fire will burn paper is a truth which I can see, that fire can occasion a sound is a truth which I can hear, that fire produces an odour when mixed with feathers is a truth which I can smell, and that fire will change the flavour of beef is a truth which I can taste. Phraseology, therefore, predicates truth of all the senses. Nor is this the end. My susceptibility to anger is a truth which I can feel emotionally, and that black is not white is a truth which my intellect can see; and thus Pilate is answered. To which of my three organisms pertains my conscience? To the emotional, for we say, I feel the stings of conscience, I feel conscience-smitten, my conscience hurts me, "it is hard for thee to kick against

the pricks"—of conscience, &c. To which of my organisms pertains my consciousness? Also to the emotional, for we say, I feel conscious, and we cannot make consciousness respond to any other organism. To which of my organisms pertains the will? Also to the emotional, for we say, I feel willing, and when a man acts contrary to the dictates of the intellect, we call him wilful, &c. "In their self-will they digged down a wall." Philologists often admire the intuitive accuracy with which the most illiterate people use the words will and shall, and no two words so well daguerreotype our diverse personality. Will refers to our emotional organization, and shall to our intellectual. A culprit might say, I shall be hanged to-morrow, referring thus to his intellectual knowledge, but he would not say I will be hanged unless he desired the catastrophy, and perhaps intended suicide. The subtle underlying organic distinction between the two words, is not readily learned by foreigners, though they might learn it by the above explanation. We have all heard the fabricated mistake of a Frenchman, who, falling into a river in England, and wishing to procure assistance, exclaimed, "I will drown and nobody shall help me!"

As phraseology in the foregoing examples manifests the organism to which verbs refer, so an equal tendency exists in phraseology to manifest the organism of the nominative. My emotions were unpleasant; my anger was excited; my intellect is stored with examples; my taste rejected it; my sight was satisfied; my hearing is perfect: the hearing cannot refuse to hear, or the sight to see. Instead of thus making the organism act as nominative to verbs, we more usually employ the personal pronoun; I felt unpleasant, I heard, I tasted, &c., and nothing so speculatively mystifies our knowledge as the implied oneness of such an actor, the oneness being only a contrivance of the intellect. The same may be said of the objective "me." The "me" which is afflicted by envy or jealousy is my emotional organism, the "me" which can be taught that three angles of a triangle are equal to two right angles is my intellect; while the "me" which can be tortured by fire is my sense of feeling. The several "mes" are as heterogeneous in their underlying unverbal meanings as the several organisms to which they relate. To avoid all confusion in such cases, I endeavour, when I can, without too much singularity, to name, in my writings, the organism which is the actor or suf-

ferer on any occasion, instead of employing the aggregated nominative I or the aggregated objective me. For the same reason I rarely speak of the mind as the nominative of any verb, the mind referring usually to the intellectual and the emotional organizations, and thus being a duality instead of a unit. I speak of the intellect by itself, and the emotions by themselves.

The distinct personality of our several intelligences or organisms, is often manifested in disease and insanity. The State Lunatic Asylum, at Utica, contains a patient who occasionally hears voices speaking to her on various subjects. Most persons would attempt to convince this patient that she hears no voices, but this would exasperate her, for she (her hearing being the proper nominative) actually hears the voices; though, were her intellect sane, it would know that her hearing is disordered. The late Attorney General of the United States, Mr. Legare, during the illness of which he died, asked for some drink, and water was presented to him; but he thrust it aside, saying it was full of ants. His attendants assured him that the ants were a delusion of his sight induced by debility, and their assertion convinced his intellect, for it was sane, and he drank

the water. Some persons not only hear sounds, as the lady above alluded to, but see the speakers who possess intactile bodies. Should such delusions of hearing and seeing occur to a man with an unimpaired intellect, he would conclude from the testimony of his associates, and from his former sensible experience, that his sight and hearing were disordered. If seeing, hearing, and feeling were all to concur in a common delusion like the foregoing, a sane intellect might possibly still believe friends in opposition to the senses; but such a supremacy of the intellect may be rare. A person may be oppressed by melancholy, while his intellect may know that no rational cause exists therefor; or he may feel a general malignity against mankind, or a particular malignity against some individual, and know intellectually that the feelings are unreasonable* and must not be indulged by the commission of any action which would gratify them. The feelings may be disordered equally in the opposite extreme of hilarity and benevolence; while the intellect may know that the feelings are morbid and unreason-

* Observe here how accurately phraseology denotes, by the word unreasonable, that the organism referred to is the reason; that is, the intellect.

able. In all such cases, the person will be intellectually sane, and his intellect can often keep his actions and language from any improprieties. The law, with its usual practical knowledge, admits the foregoing distinctions, and limits sanity to the condition of the intellect, juries being required to decide whether the prisoner knew, intellectually, right from wrong;—indeed, the word know always refers to the intellect. Crimes are rarely committed except from the urgency of our emotions, appetites, or desires; hence, were such urgency a justification of crime, every criminal would escape punishment. Still the law defers to anger that is excited suddenly by any provocation, and it doubtless ought to defer, in some degree, to any morbid urgency of a man's feelings of any kind; but a man should be exempt from all responsibility only when his intellect itself is so diseased as not to know that an indulgence of his feelings is intellectually wrong; the intellect being authoritative over our actions, as we see by our submission to surgical operations at the bidding of the intellect, and the orderly submission of malefactors to tortures and death, and by the decency of conduct exhibited uniformly by the sick and dying. Insane persons often commit murder with adroit pre-

cautions against detection, and the circumstances are adduced on their trials to prove that the murderer's intellect knew right from wrong; but a man may insanely deem his conduct right and still avoid an open commission of acts, from fear of consequences which he may know will proceed from detection. To discriminate sanity from insanity under such and analogous circumstances is difficult, but the difficulty cannot nullify the difference. Men, emotionally excited or depressed by intoxication, aroused thereby to malignity or soothed to benevolence, know intellectually, that they are intoxicated, and that their feelings must be resisted. They will often forbear pecuniary engagements and keep their property unimpaired. The intellect's exemption from the effects of alcohol is a better reason than is usually given for the legal axiom, that intoxication is no excuse for crime.

§ 3. As phraseology can tell us the organism to which any word refers for its signification, so conversely our organisms can interpret phrases better than any other interpreter. For instance, the phrase "I thank you;" what is its meaning? Etymologists say it means, "I will think of you." We may then ask what the latter phrase means,

and we can arrive at no end of such inquisition; but, by looking inwardly, we shall find an emotion which every man experiences on becoming the recipient of kind offices from other men; and that constitutes the ultimate meaning of the phrase. Adieu! God bless you! Peace go with you! refer to another emotion which is organically excited in friends when they are about to separate, hence in all languages some phrase must be employed to express the emotion, as also the former; and the phrases will be dictated by the different habits or local knowledge of the different races who use the respective phrases. Etymology may reveal to us how "I thank you," came to be applied by Englishmen to a given emotion, but when we would know the meaning of the new use we must not look to the etymology, but to the organic manifestation to which the new use refers.

Like remarks apply to words expressive of intellectual conceptions. Our English word spirit came from the Latin word, which signified literally a breath or wind; hence some etymologists think that its present meaning is limited to its original signification; but the intellect is so organized that probably no race is so rude as not to have conceived what we name spirit, though the name by

which it is referred to by any given race will depend on the local knowledge and habits of the people. The same may be said of angel, which signified originally a man employed as a messenger; but introspection will teach us that it signifies now an intellectual conception, which in many persons is associated with reverential emotions; and so pertinent to our intellect and emotions is the conception that we name angel, that it is probably common to all races of men, though referred to in different states of society by names so analogically different from ours as to prevent the ready identification of the common conception. The intellect is continually expressing its conceptions by the use of words that originated with the senses, but to deem the new use expressive of only the original meaning is analogous to the old factious cry that bank notes are only old rags and lampblack. But while the conceptions angel and spirit exist probably among all peoples, a like universality is not predicable of every conception, civilization influencing the intellect to conceive in some condition what in some other condition may remain unconceived; especially will different degrees of civilization influence the conceptions to which names will be applied. Absent minded is

an organic condition of the intellect which must be coextensive with man, but it may not be universally designated verbally; and we may say the same of ennui, which refers to a condition of our feelings. The presence or absence in any language of phrases referring to organic conditions, would yield some indication of the civilization of the people by whom the language was spoken.

Words that relate to physical objects we are accustomed to interpret by referring to the object named, but words relating to intellections and emotions we are never taught speculatively to interpret by introspection, as in the preceding examples is recommended, though the process is practised universally. The parting benediction of his parent every child thus interprets, though no word of the benediction may be to him significant otherwise. Even the cries of brute animals are understood when they proceed from wants and feelings common to the animals and to us; animals being unintelligible to each other in proportion to only the heterogeneity of their organisms. If I see hot water thrown on a dog and hear outcries from him, my intellect understands his exclamations as well as though they were English words. On the same principle my intellect will

recognize the meaning of words uttered by two foreigners who shall meet suddenly in my presence after having been sometime separated. Such an interpretation of unknown words is like the trigonometrical solution by which when two angles of a given triangle are known, the third angle also becomes known. When Fulton, in 1812, inspected, at New York, a machine which purported to rotate by a perpetual motion, his intellect immediately detected the agency of a hidden crank, and thereby discovered the deception. I happened to be present, but was unable to detect the trick, my intellect not knowing any two sides of the triangle of which, in this case, the hidden crank was the third. The words which a man addresses to the woman of his affection, are often incoherent and peculiar to the speaker; yet they are understood by any person who has felt love and knows its dictates. Oaths and execrations are often mere exclamations, but we estimate them by the rage and hate from which we know they proceed. A nominal benediction would be offensive, should we know from attendant circumstances that it originated from malevolent feelings. I saw lately some comments on the fancied translation into French, by a Frenchman, of the exclamation "Out, brief

candle!" The Frenchman is made to render it, "Get out, you short candle!" The difference in the two exclamations is ridiculous enough, but the ridiculousness depends alone on the different organisms to which the phrases refer; "out, brief candle!" expressing an emotion, and "get out, you short candle!" expressing customarily only a physical action to be performed. Irrespective of these differences in us, the two phrases are verbally much alike. So "hail, horrors hail!" were rendered into French by the same fancied Frenchman, as "how do you do, horrors, how do you do!"—two phrases which differ only in the different emotions to which they are become conventionally connected. "To strain *at* a gnat and swallow a camel," is now sought to be amended by saying "strain *out* a gnat and swallow a camel;" for, say commentators, to strain at a gnat is unmeaning, while to strain out a gnat from wine was customary in Palestine, where gnats abounded. But is not the swallowing of a camel more unmeaning, physically considered, than to strain our throats at swallowing a gnat? The commentators should materialize both branches of the sentence, if either, and make it, "to strain out a gnat and leave a camel." The error, however, is with the commentators in giving the phrase a

physical application when its meaning is wholly intellectual; in which meaning the present version of the Bible, in being figurative throughout, is better than the amended version would be. Analogous to the foregoing is the scriptural rebuke, "Why beholdest thou the mote that is in thy brother's eye, but considerest not the beam that is in thine own eye." Some future commentator may endeavour to materialize this also, and insist that the beam must be "before thine own eye," not in it; which they might well insist is an absurdity; but the absurdity is in the interpreter, not in the text.

To thus look inwardly for the subjective meaning of language, rather than outwardly for an objective meaning, will solve many mysteries. Why must time be past, present, or future, and not a continued present? Because our senses perceive by only successive sensations. Our thoughts and feelings are equally successive, and about equally transient. From these unintermitted successions, our intellect knows no continuous present, and can, therefore, conceive time as only present, past, and future, just as it can conceive ice as only hard and cold. The omnipotence and omnipresence of God are not so mysterious to us as His om-

niscience, and the reason therefor can be found in only our organization. The omnipotence of God is only an enlargement of our own power, and the omnipresence is only an enlargement of our corporality; but the omniscience involves a knowledge of futurity, and therein our organisms yield us no similitude.

The eternity of duration, and the boundlessness of space, are also mysteries when we seek them objectively; but both mysteries vanish when we look for them subjectively. Our physical organization can find no boundary to space, hence the intellect responds thereto by conceiving space to be boundless. Our senses, thoughts, and emotions yield us no consciousness of any period antecedent to their successive actions, or any period posterior thereto; hence our intellect responds to our experience by conceiving time to be eternal. The intellect of a child would necessarily conceive that everything thrown into water must sink, had his experience therein been confined to stones; or that everything must swim, had his experience therein been confined to sticks and feathers. The rapidity of thought is estimated by us as the maximum of speed, but thoughts would still be our maximum therein if they succeeded each other with intervals

of an hour, provided our organization continued as now to apprehend intellectually by means of only successive thoughts. Why cannot the same thing be at the same time both hot and cold? We say the terms negative each other. But how came the terms to negative each other? We shall find no end to such inquisition, except in our organization, which permits no identity of heat and cold. The intellect sees no incompatibility between white and sweet, or white and hot; and precisely for the reason that it sees an incompatibility in hot and cold. That we cannot foresee futurity becomes mysterious when we estimate the impediment objectively, but when we estimate it subjectively, it merges into the general mystery of our personal ego:—our senses can take cognizance of only what is present to them; our intellect of only its present thoughts, and our susceptibility of only its present emotions, hence we cannot see into futurity.

Speculatists have been much puzzled by the inevitableness of number and form, as pertaining to most visual and all tangible objects; but they are conceptions of our intellect as correlative to our visual and tactile organisms, as bitter and loud are correlative to hearing and taste. Our theorems

show how seeing organically individuates numerous sights from what was originally seen unnumerically. A child who looks for the first time at a sandy beech sees nothing therein of the numerosity that was promised to Abraham, and could the child's first vision embrace all created objects they would appear unnumerical. The same may be said of visual form. The visual horizon differs in size in different men according as they are far sighted or near sighted, and its form in all is governed by the common structure of the eye. Tangible form is correlative in the same way to our tactile organism. When a man plunges into a river, the intellect conceives therefrom no notion of form, the water touching every part of the body; but when only a part of his body is touched by anything, his intellect conceives a form which is so correlative to the touch as to be designated thereby,—as sharp, blunt, flat, large, small, &c. Why can we reason only from analogies? Our organism precludes our intellect from seeing *à priori* any congruity between a cause and any given effect, or the adaptation of means to any given end; hence arguments to be operative on us must be analogous to something we have experienced. Equally subjective to our organisms is

all our knowledge, hence to say anything is inconceivable, relates only to our powers of conception, just as the indigestibility of a stone relates only to our digestive organs. To say anything is incomprehensible is correlative to our comprehension; and to say anything is impossible is correlative to our powers of performance. As we call water hot when it produces heat in us, so we call an event surprising when it excites in us the feeling of surprise, and admirable when it excites in us the feeling of admiration. Whatever excites in us a feeling of wonder, we call wonderful; what excites our hate, we call hateful; what excites our love, we call lovely; what hurts us, we call hurtful; and what pleases us, pleasurable. What promotes our health, we designate as healthful; and a chair which discomforts us we designate as an uncomfortable chair. A severe frost within the tropics would be very extraordinary, while a like frost beyond the tropics would be no way extraordinary,—the extraordinariness referring not to frost irrespective of us, but to frost with reference to us. The presence of the sun is no way extraordinary, but the presence of a comet is extraordinary, and the presence of two comets together would be very extrordinary. The most extra-

ordinary thing I ever saw would be the thing which differs most from my ordinary experience. Children are continually seeing extraordinary things; but what is extraordinary to a child may be ordinary to a man. A populous city is not so extraordinary to a man accustomed thereto, as the animalcules which a microscope may exhibit to him for the first time in a drop of water; nor is a noonday sun so wonderful to a man as the flash of a firefly, should he never have seen previously any insect of the kind. A man on his first visit to a beech can scarcely restrain his desire to pick up the pebbles with which it is covered, and after filling his pockets with them, and familiarity making them no longer extraordinary, he casts contemptuously from him the burden. To say anything is portentous is merely an indication that the intellect conceives the event to portend something; the portentousness is in the intellect, not in the object. To say anything is miraculous, is in the same way an announcement of an intellectual conception that ordinary means could not produce it. Our adjectives are generally thus subjective: a cheerful day is a day that excites cheerfulness in us; a gloomy sound is a sound that excites gloom in us, &c.

§ 4. Different languages have lately been compared to ascertain whether they indicate a common origin in some pristine tongue. I wish they had been compared to ascertain how far in the formation of all of them, the intellect adopts the same expedients, for we should acquire thereby much knowledge of the intellect itself, on Lord Bacon's principle, "that words are the impressions of reason, and impressions afford some indication of the body that made them." My knowledge of languages is too limited to enable me to prosecute such an investigation, but I will conclude the present speculations by some examples drawn from the English language, of the kind of expedients to which I refer. One of them relates to the mode by which we are enabled to converse with each other of pains that cannot be manifested objectively to the person we address. It consists in talking of a gnawing pain, a burning sensation, as though knives were cutting us, as though augurs were piercing us, &c., to the end of the means which our intellect conceives capable of inflicting pains analogous to those we are suffering. Another expedient of the intellect enables us to converse with each other of the subjective processes of our intellectual and moral organisms. It con-

sists in assimilating the processes of the intellect to sights, and the processes of our emotional organism to feels; whereby we talk of seeing the cogency of an argument, as we talk of seeing a rainbow or any other physical object; and we talk of feeling sympathy as we talk of feeling objective roughness. The intellect, being the author of these expedients, understands them, so that no person confounds what is emotional with what is tactile, or what is intellectual with what is visual, though we are continually employing the expedients.

Much that is contained in the preceding section might be repeated in connection with the present, especially the portion which spoke of the intellect's expedients to express qualities,—a large portion of adjectives being effects which objects produce in us. Cruel questions are such as excite pain in us, and the like may be said of agonizing reflections, thrilling music, terrific sounds. Adjectives which relate to intellections are taken freely from sights; as a brilliant imagination, a clear intellect, sparkling wit, bright thoughts, dark thoughts, a clouded mind, a beautiful conception, &c. Sensible feels are commonly employed by the intellect as adjectives of emotions. We say, hard feelings, hot anger, warm desire, cold friendship,

burning revenge, gnawing envy. Feels are employed by the intellect as adjectives of sights also, hence we say warm colours, heavy clouds. They are employed occasionally as adjectives of smells; as close smell, heavy smell, light smell. Tastes are often employed adjectively by the intellect; as sweet sounds, bitter words, luscious paintings, &c.

Adjectives derived from the same organism as the objects they qualify, are rather designative than adjective, as brilliant spectacle, bright red, clouded sky, dull white.

The foregoing few reflections on the expedients adopted by the intellect in the formation of language, I give for what they may be worth, and I have produced only a sufficient number of examples to elucidate a mode in which different languages may be compared. Philologists dignify their studies by saying that language is a greater work than all the arts and sciences it records; and we may safely add, that our intellectual, emotional, and sensible organisms, the matrices of language, are a greater work than language.

THE END.